

JULY 1960

Material Handling Engineering

Established in 1945 as FLOW Magazine

MODULAR WAREHOUSING STACKS IN CUBE pg 49

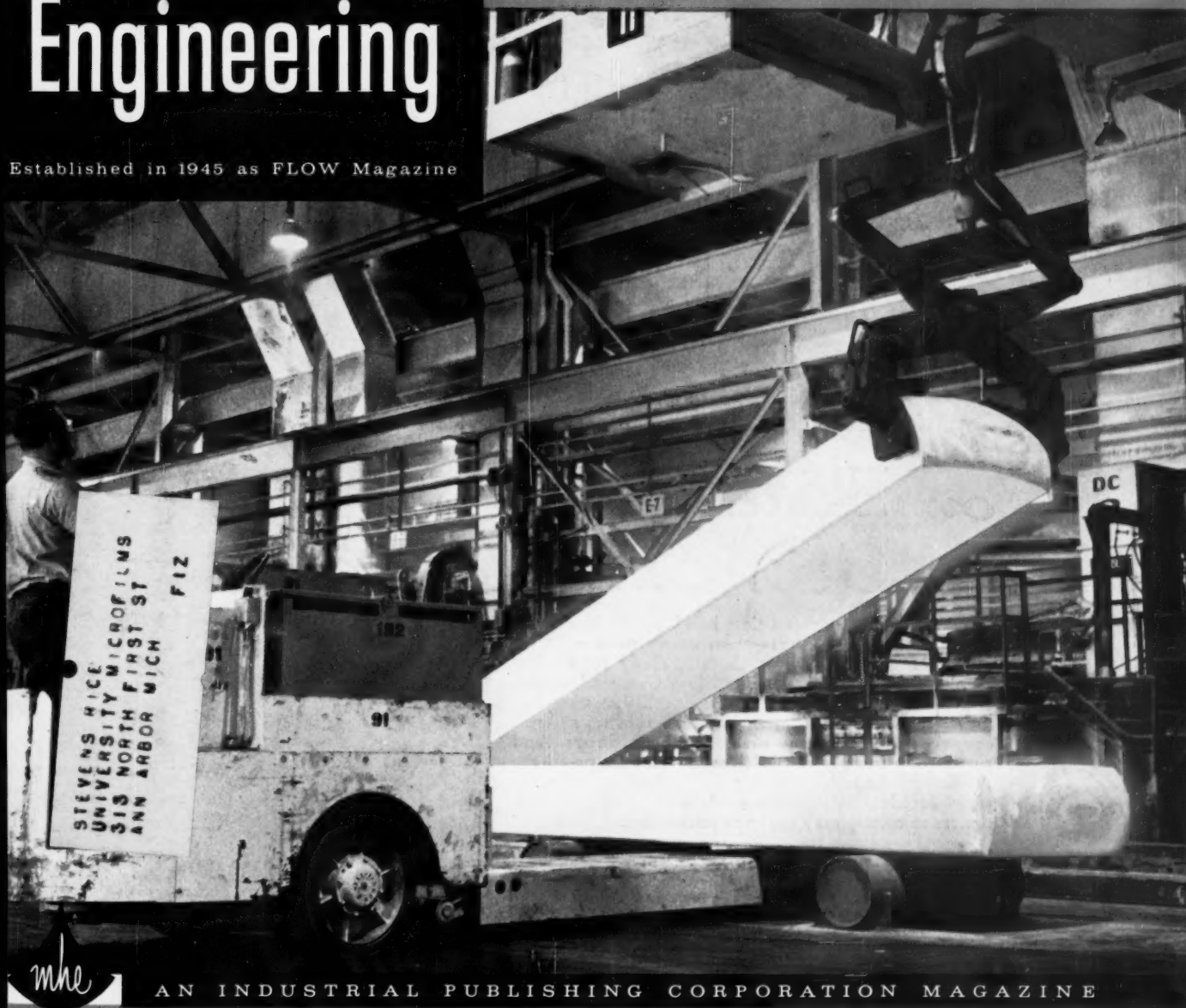
FUEL CELLS — ALMOST HEREpg 50

FACTORS OF TOTAL PACKAGING COSTSpg 59

THE INDEPENDENT TEST LABORATORY ...pg 62

Handling Hot Material

see page 41



AN INDUSTRIAL PUBLISHING CORPORATION MAGAZINE

The original publication of the material handling industry, preferred by identified buyers of material handling, packaging and shipping equipment and supplies.

Stack 'em...

Move 'em...

Stock 'em... in Quantity...

on Faultless Casters

Eliminate costly, one-at-a-time handling methods with Faultless Casters! Parts—even heavy ones—can be stacked high on Faultless Casters, ready for further processing. Fully loaded Faultless Castered trucks, carts, dollies, racks roll easily, smoothly... carrying your products from machine to machine, around corners, down narrow aisles, even outdoors. And products stocked on Faultless Castered equipment require minimum rehandling for packaging, or shipping. Faultless engineers a complete line of precision casters to meet your specific requirements.

ASK YOUR DISTRIBUTOR. Your nearby Faultless Industrial Distributor and the local Faultless Sales Engineer will work with you to eliminate costly one-at-a-time handling methods at your plant. Your Distributor maintains a substantial inventory of Faultless Casters for immediate delivery.



NOELTING
Faultless Caster Corporation
Casters
Evansville 7, Indiana

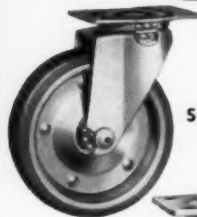
Branch Offices in principal cities; see the Yellow Pages of the telephone book under "Casters." Canada: Stratford, Ontario

Circle 71 on Reader Service Card

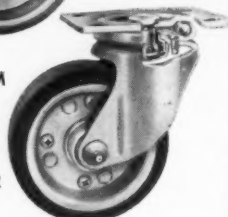
**GENERAL
DUTY
SERIES 100
CASTER**



**LIGHT
DUTY
SERIES 400
CASTER**



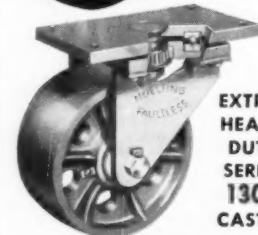
**MEDIUM
DUTY
SERIES
L900
CASTER**



**HEAVY
DUTY
SERIES
H900
CASTER**



**EXTRA-
HEAVY
DUTY
SERIES
1300
CASTER**



Casters illustrated are typical of complete range of load capacities and types available for every materials handling job.



*"They treat you fine
at the
Goodyear Sign!"*

See what it means to have

STEEL GUARD Tires

the industrial pneumatics with built-in puncture-barrier

You're looking-up through heavy plate glass—at the kind of shop or yard debris that makes short work of ordinary lift-truck pneumatics. The hazards of the worst brickyard or foundry litter—jagged steel, bricks, nails or what have you—can be reduced to a minimum with STEEL GUARD Tires.



First place, each STEEL GUARD has its own built-in puncture-barrier of heavy, webbed steel cable—right up across the shoulders. And that's embedded solidly in the rubber just above the plies.

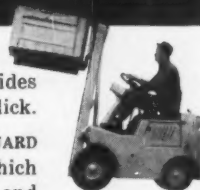
Then, there are the thick, rugged lugs of the STEEL GUARD. They make for a tread design that absorbs most

any kind of punishment—and provides extra-traction when the going's slick.

And remember — these STEEL GUARD Tires are industrial *pneumatics* which mean a smooth ride for driver and cargo — plus exceptional stability and flotation. Yet they are practical for use where you would only be inviting trouble with ordinary pneumatic tires.

Wouldn't it pay you, then, to look into this new kind of pneumatic industrial—the great new STEEL GUARD by Goodyear. Check with your Goodyear Dealer — or write:

Goodyear, Industrial Tire Sales, Akron 16, Ohio.



STEEL GUARD TIRES BY

GOODYEAR

Steel Guard—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

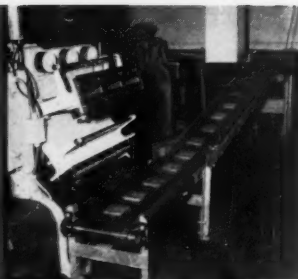
Circle 82 on Reader Service Card

JULY, 1960



Loading operations get a big boost when Wendway conveys products through processing operations and directly to shipping areas. Eliminates storage, handling and time loss.

Fragile packages, etc., are completely safe on Wendway. Smooth, silent travel delivers products in perfect shape, clean and fresh in appearance.



HERE'S WHAT WENDWAY

CAN DO FOR YOU...



Both loose and packaged frankfurters are efficiently conveyed on Wendway equipped with stainless steel belting for the utmost in sanitation.



Wendway is perfectly suited to the cooling or freezing of raw products. Illustration shows unbaked pies being conveyed through freezing tunnel.



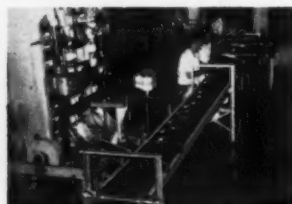
Wendway is ideal for conveying fresh unwrapped food products. Stainless steel belting is recommended for all food conveying operations.



Wendway belting will not damage even the most delicate of products. Automatic conveying assures products of cleaner, fresher, neater appearance.



Overhead cooling for cooked or heated products saves you time and floor space. Wendway takes 'em up, cools 'em off and brings them down automatically!



Packaging or assembly operations can be synchronized to production, thanks to Wendway's variable speed control. Here, small packages are conveyed through a series of stapling machines.

Wendway can be your "silent partner" by conveying any light products weighing 20 lbs. or less, swiftly and silently from one operation to the next. Wendway conveying systems are completely sanitary . . . safe for operators, too! Space-saving Wendway will carry your products overhead, through walls, upstairs or down—to any place you want them. Wendway will eliminate wasted manpower, unnecessary handling and boost production all along the line. Standardized powered straight sections, curves, switches, etc. are operated by remote control and easily adjusted to required speeds. Wendway will smooth out your assembly processing, packing or inspection problems and pay for itself in time and equipment saved. See for yourself—survey your requirements today and let a USP conveyor engineer assist you, all without obligation.

Remember . . .

- Wendway answers your 'light product' conveying problems.
- Wendway complies with even the most rigid sanitation codes.
- Wendway synchronizes perfectly with other production line equipment.
- Wendway increases production line profits.

• Write today for additional information, literature and specifications to match your conveying requirement. Let USP's conveyor engineers put their experience to work for you, now!



**UNION STEEL
PRODUCTS CO.**
Albion, Michigan

Gentlemen: Please have your area representative contact me at once.

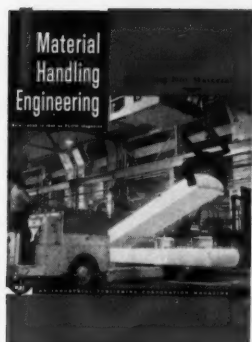
Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____

The product to be conveyed is _____



for July 1960

COVER: Moving hot material is a problem that besets many a handling engineer. Our cover photograph shows how one hot handling problem was solved: a 20,000 pound platform truck, an overhead crane, and a grab team up to transport white hot aluminum ingots, each weighing 10,000 pounds. Starting on page 41, Editor Jack Atzinger reviews some of the ways in which material handling equipment has been adapted to situations in which hot, corrosive, or radioactive material makes handling dangerous.

FEATURES

41 HANDLING HOT MATERIAL

An 8-page pictorial that shows latest methods and special equipment.

49 MODULAR WAREHOUSING PACKS DISHES IN CUBE

Scientific approach to use of floor space doubles warehouse volume.

50 THE FUEL CELL—ALMOST HERE

The latest on this new source of motive power and the types under development.

54 AUTOMATIC CONVEYORS CRACK RETAIL HANDLING JAMS

Good handling in a department store, a field where good handling sometimes lags.

57 VEST POCKET CONTAINERIZATION

A special report from the 3rd Western Regional Material Handling Show.

59 FACTORS OF TOTAL PACKAGING COSTS

A guide to exact costs, laid out step-by-step.

62 THE ROLE OF THE INDEPENDENT TEST LABORATORY

What testing can do for the packaging and material handling engineer.

Have You Met . . . ?

W. B. (Mac) McClelland, new editor of MATERIAL HANDLING ENGINEERING. Mac is a fellow who really fits the category of "expert." He's had an insider's view of just about every material handling responsibility that's in the book, and a few that aren't.

Most people know Mac as an interesting and challenging speaker on the subject of material handling. Or they might have read one of his many articles.

For 10 years Mac headed his own material handling equipment organization. Previously he did market research and sales training for Clark Equipment Co. And before that he was the organizing guide of supply depots as Chief of the Automotive Division of Cleveland Ordnance District, U.S. Army.

Mac is assistant director of the Material Handling Training Conferences operated by Professor James Bright at Lake Placid Club.

MHE's readers will benefit from the broad experience that Mac brings to the editor's job. You'll be seeing some of his fresh, imaginative material handling concepts soon.



Ironbound Skids



ROUNDED SAFETY CORNERS

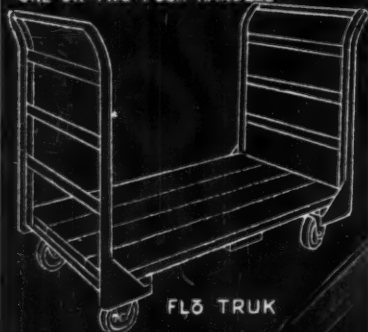
"Short-Haul" Skids



ONE JACK SERVES MANY SKIDS

Floor Trucks

ONE OR TWO PUSH HANDLES



FLO TRUK

Write for
Illustrated
Catalog

BOUND TO BE BETTER
Ironbound
MATERIALS HANDLING EQUIPMENT

**IRONBOUND BOX &
LUMBER COMPANY**
30 HOFFMAN PLACE, HILLSIDE, N. J.

Circle 97 on Reader Service Card

Material Handling ENGINEERING

volume 15 number 10

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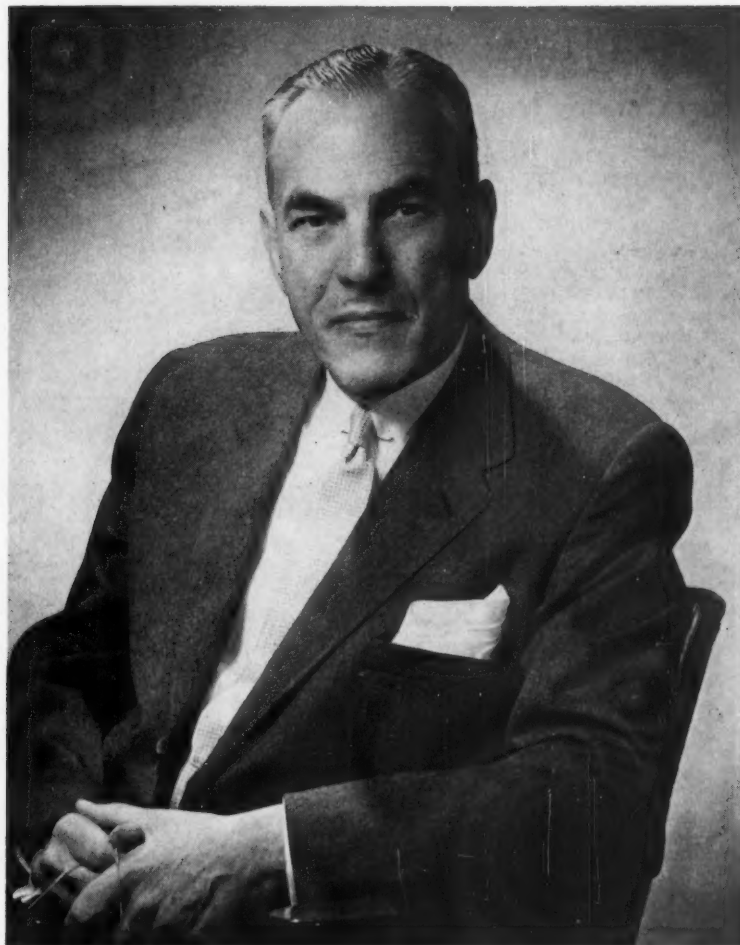
127 Advertisers' Index	22 Handling 'Round	103 New Equipment
21 Calendar of Events	The Country	32 News About AMHS
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126 Classified	83 Men in the News	87 Useful Literature
75 Cost Cutting Ideas		

MATERIAL HANDLING ENGINEERING

IRVING B. HEXTER

1897-1960

*Founder, The Industrial
Publishing Corporation*



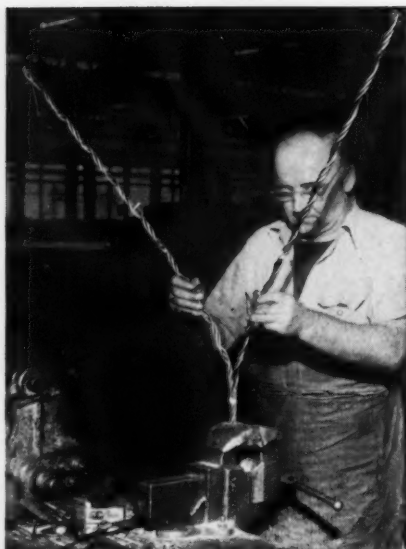
ONCE YOU MET IRVING HEXTER, you remembered him. He didn't leave neutral impressions. He probably was never neutral about anything in his life. He reacted strongly to things, responded warmly to people—and they to him. He devoted nearly as much effort to people as he did to the publishing firm he founded. Scores of worthy causes asked his help. None was ever refused. His great labor of love was the American Heart Association. He served it as a national officer for years, was the third layman ever to win its Gold Heart Award. He established and endowed a laboratory for heart disease research.

Spending time with Irving Hexter was exhilarating. He had energy enough for five men and it was infectious. He generated ideas at a furious pace; his energy sparked the men around him. You worked a bit harder than your best for him, not because he drove you, but because you couldn't do less and face him. He could spot a phony or stuffed shirt a mile away. He abhorred them.

Irving Hexter traveled 35 weeks a year, with Mrs. Hexter had seen nearly every part of the globe. Living out of a suitcase was his kind of relaxation. He could out-work, out-travel, out-enjoy-living any man in the company. With fierce energy he started a little magazine at the bottom of the depression, built it into a major publishing firm. Then, he assured its permanence by divesting himself of ownership and, more recently, day-to-day management. Not that he slowed down. Irving Hexter had only one speed: forward, high. He was researching another new publication idea when his heart failed. He died May 22 at 62, just a few months before the 30th anniversary of the company he founded.

1 Here, our splicer has separated the rope to desired loop size. (Note white mark on rope, above vise; and another above left hand.)

2 Now the sets of strands are being laid over each other to form loop — Three in one direction, the other three and I.W.R.C. in the other.



3 The loop — before the sleeve is in place or swaged — has a strength well in excess of the rated capacity of the sling, as an added "safety insurance."

4 All ends are tucked under the tapered steel sleeve, being driven into position here.



5 Up to 1500 tons of pressure are applied to the sleeve, permanently securing sleeve and strand ends, to complete operation.



now you can show your safety man why Roebling All-Purpose Slings are **TWICE** as safe

The first large measure of safety is in the rolled loop splice, the second safety measure is in the swaged steel sleeve. These great weight lifters go by the name of Roebling All-Purpose Slings or, if you prefer, "Safety Plus." They are made in a variety of diameters, lengths and types and all of them develop the *full catalog strength of the rope*. To really be on the safe side, why don't you ask us

for our brochure on Roebling "Safety Plus" Slings? Just say, "A-944" and it shall be sent to you promptly.

You can get Roebling All-Purpose Slings — as well as Grommet, Cable Laid, Flatweave, 8-Part Braided and other special slings — from your nearby Roebling Distributor or Roebling's Wire Rope Division, Trenton 2, New Jersey.

ROEBLING

Branch Offices in Principal Cities
John A. Roebling's Sons Division
The Colorado Fuel and Iron Corporation



Circle 145 on Reader Service Card

MATERIAL HANDLING ENGINEERING



...shrinks dunnage costs as much as 50%

It takes only seconds to inflate a Super-Cushion Dunnage Bag. But these portable, reusable, rubberized fabric bags are potent weapons in your fight against rising shipping charges.

They eliminate the need for wooden shoring that's used but once. They make it unnecessary to keep a crew of carpenters on the loading dock. And these bags are so easy to handle—so quick to install—they cut both loading and unloading time, shrink demurrage.

But remember, all this takes genuine Super-Cushion bags developed by the G.T.M. — Goodyear Technical Man — and his colleagues. Where other bags must be laid out and pre-inflated to make sure misaligned bladders won't burst, these exclusive unit-construction bags slip right into place before inflation. They even fit spaces as narrow as 2 inches.

Super-Cushion Dunnage Bags have other pluses, too: They're lighter — easier to handle. They have a rough-impression, nonslip surface to prevent them from working out of place. They are amazingly rugged.

Wouldn't it pay you, then, to check into these great new dunnage bags—already cutting shippers' dunnage costs as much as 50% and ending breakage to boot! Just contact the G.T.M. — or write Goodyear, Industrial Products Division, Akron 16, Ohio.

Super-Cushion—T.M. The Goodyear Tire & Rubber Company, Akron, Ohio

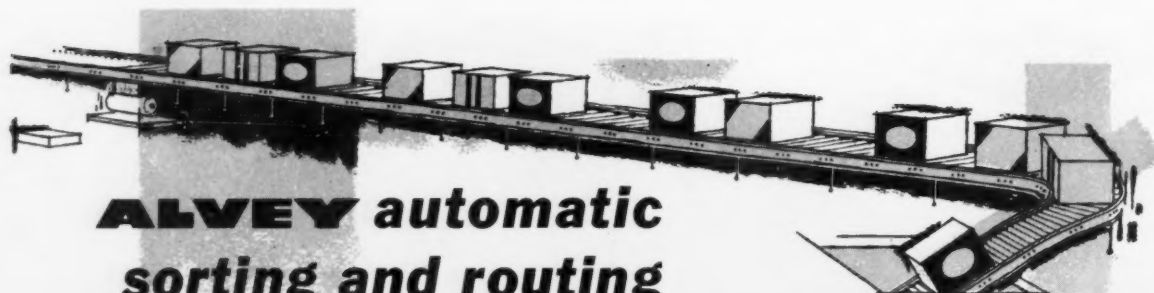
Lots of good things come from

GOODYEAR

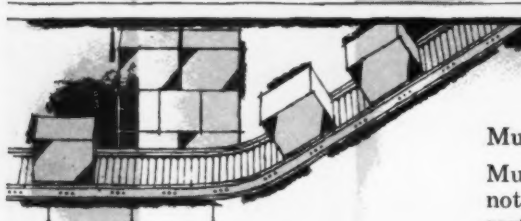
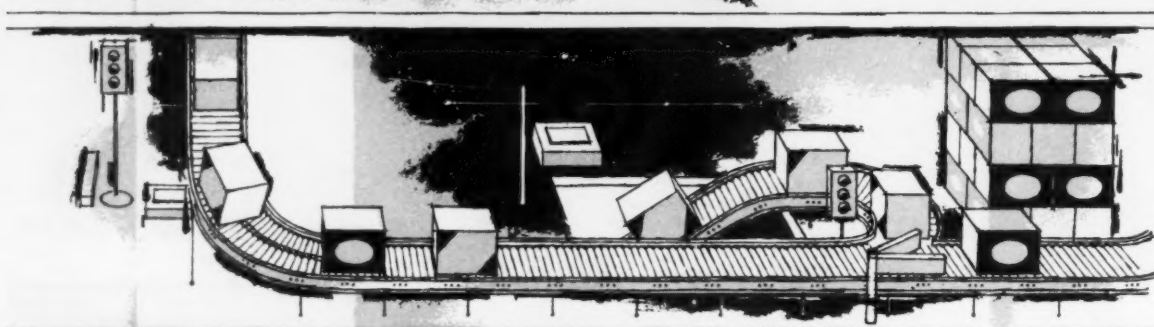
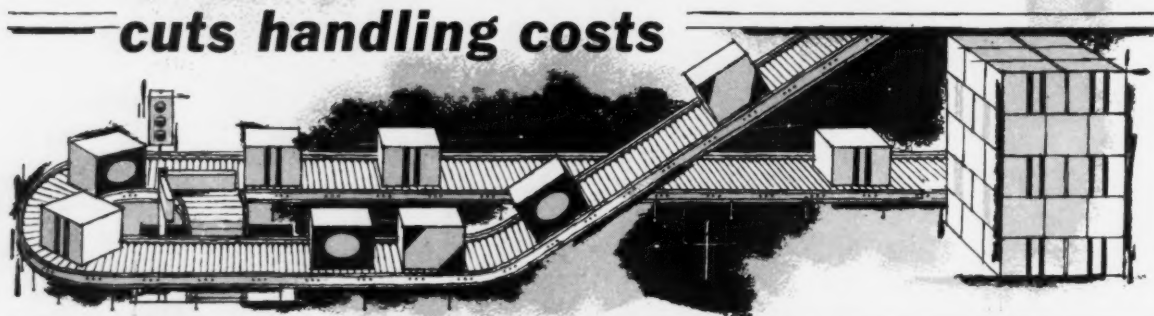
THE GREATEST NAME IN RUBBER
Circle 83 on Reader Service Card

JULY, 1960





ALVEY automatic sorting and routing cuts handling costs



Multiple story manufacturing plants are not out of date.

Multiple routing, from floor to floor or on one level, need not mean multiple expense. One Alvey conveyor system can sort and dispatch a variety of products or materials to different locations in a continuous flow, automatically . . . untouched by human hands! Scanning devices can "read" your packages and dispatch them to the right destination.

Whether you need a completely-integrated conveyor system, or individual package handling units, put Alvey's experienced, creative conveyor engineering to work for you.

If you're planning to build, modernize—or if you're simply open to new ideas—call in Alvey. No obligation for consultation. **Alvey Conveyor Manufacturing Co., 9299 Olive Street Road, St. Louis 32, Mo.**

*Alvey . . . serving these famous names
and many more*

A. E. Staley Mfg. Co.
Armour & Co.
Royal McBee Corp.
Philip Morris
The Hoover Co.
Firestone

Goodrich-Gulf Chemicals
Hiram Walker
A.C.F. Wrigley
Whitehall Laboratories
Anheuser-Busch
Esso Standard Oil

ALVEY *moves more for modern industry*

ENGINEERED CONVEYOR SYSTEMS • PALLET LOADERS AND UNLOADERS • VERTICAL LIFT CONVEYORS
ROLLER, BELT, APRON, PUSHER BAR, SPIRAL, AND SLAT CONVEYORS • PACKAGE HANDLING SPECIALTIES

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MATERIAL HANDLING ENGINEERING

The Ludlow Method

2-STRIP CASE SEALING

FASTER - STRONGER - COSTS LESS



OLD WAY (38.5 Seconds) White lines show actual motions required for sealing just the top of a container with plain paper tape.



LUDLOW METHOD (11 Seconds) The same job is done in a single motion. And tough multi-directional fibre reinforcements make closures nearly 3 times as strong.

The tapes that broke the six-strip habit!

Ludlow's reinforced tapes, SNAKETAPE and GLASPUN, are so strong that only two strips are required to seal your cartons instead of the six strips required when plain paper tapes are used. This faster, stronger center seam closure method actually reduces your tape application costs by 66%. Both SNAKETAPE and GLASPUN are approved for shipment on all carriers, including railroads under U.F.C. Rule 41.

Be sure to specify *Ludlow* reinforced tapes — either glass-reinforced GLASPUN, or world-famous SNAKETAPE, the *only* reinforced tape with rayon reinforcement. The Ludlow name is your best assurance of uniform quality and dependability.



A - SNAKETAPE®
Rayon-Reinforced

B - GLASPUN®
Glass-Reinforced

LUDLOW PAPERS • Needham Heights, Mass. • Dept. 172

Please send me more information on the Ludlow 2-Strip Sealing Method. I am now using ☐ Staples ☐ Wire Stitching ☐ Plain Paper Tape

Name _____ Position _____

Company _____

Street _____

City _____ Zone _____ State _____

VPI-Coated Papers • Greaseproof Papers • Waterproof Papers • Poly-Coated Papers • Gummed Tapes • Federal Spec. Papers • Label & Specialty Papers • Plastics

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FROM ¼ HORSEPOWER

TO

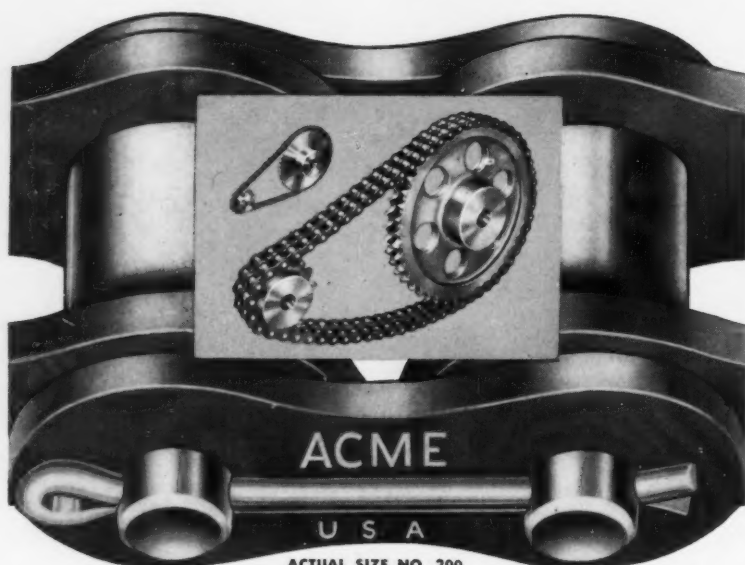
1000 HORSEPOWER

Average Tensile Strength 95,000 lbs.

ACTUAL SIZE NO. 25, ¼" PITCH



Average Tensile Strength of 925 lbs.



ACME Roller Chain applications range from fractional horsepower drives to those in excess of a thousand horsepower.

The ACME ¼" pitch roller chain, weighing less than two ounces per foot, is used on such intricate machines as microfilm projectors, electronic controls

and many other similar applications.

ACME large pitch chains of multiple strands, weighing 40 to 50 pounds per foot, are available for heavy duty service on heavy machinery.

Use ACME Roller Chain Drives and be assured of these inherent characteristics:

- 1 High efficiency throughout the life of drive.
- 2 Constant speed ratio between the driving and driven shaft.
- 3 Minimum loads on shaft bearings.
- 4 Sufficient elasticity to absorb shock loads.
- 5 Maximum life expectancy.
- 6 Large speed ratios — up to, and including 6 to 1.

Your local Distributor can supply you promptly with ACME Roller Chains in 12 standard sizes, from ¼" pitch, ¼" width to 2½" pitch, 1½" width.



Write Dept. 29-H for new 100-page illustrated technical catalog including new engineering section showing 36 methods of chain adjustments.



COMPLETE LINE OF ROLLER CHAINS AND SPROCKETS • DOUBLE PITCH CONVEYOR CHAINS • STAINLESS STEEL CHAINS • CABLE CHAINS • FLEXIBLE COUPLINGS • STANDARD AND SPECIAL ATTACHMENTS

Circle 3 on Reader Service Card

LETTERS to the EDITOR

We recently received a copy of the following letter which was sent to Carl Sprague, author of "Don't Be a Slave to Rule 41" in our May issue. We know our readers will be interested in another side of the discussion.

Dear Mr. Sprague:

As a fellow member of the Society of Packaging Handling Engineers and Manager of the Freight Loss and Damage Prevention Bureau, California Trucking Associations, may I draw to your attention certain aspects of this article.

While I do not question your ability as a packaging engineer, I do question the advisability of releasing such an article for general publication. The Society of Packaging Handling Engineers has spent considerable efforts in impressing upon shippers the need for good sound, well engineered packages. Connotations in your article go a long way in discouraging endeavors to promote these ideas. The general shipping public could be misled by your statements concerning test permit moves. May I draw your attention to the paragraph which states "If a permit is refused, your only recourse is to ship in nonconforming packages, pay a 20% rate penalty and assume the risk of damage . . .". Your attention is directed to Rule 5, Consolidated Freight Classifications, Section 4 which states in part, "When articles are found in transportation which do not comply with the foregoing requirements, the following method of determining the rate charges will govern, but this section shall not be construed to provide rates or ratings and should not be used as a basis for quoting rates in advance of shipment . . .". Section 4, Rule 5, Sub-Heading (a) provides the 20% penalty rating for shipments found in transit. Shipments not packed in conformity with classification requirements shall be refused and the penalty rating can be assessed if inadvertently shipped and found in transit. A shipper is not allowed to ship an unauthorized container merely because he has offered to pay a 20% rate penalty, nor can the shipper assume the risk of damage. The ideas expressed in your article, if universally adopted by shippers, will only lead to more stringent requirements under the present test permit program authorized for both rail and truck shipments. For your information, there is presently before the Research and Development Committee of the National Freight Claim Council, a definite proposal to place additional requirements upon test permit



1. Performs like a regular fork lift truck . . .



2. Stacks left 90° in narrow 6' aisles . . .



3. Stacks right 90° in same narrow aisles . . .



4. Drives loads into trailers and boxcars!

One truck...one operator...does all this!

(Only the new Towmotor "Naro-Aisle-Stack" Truck can!)

- Only truck of its kind for narrow 6-foot aisle stacking
- One lift truck does the work 3 trucks usually do
- Makes 36.5% of "lost" space usable in average plant

Amazing performance? You can't imagine what the "Naro-Aisle-Stack" lift truck will do until you actually see it . . .

See how it pivots loads a full 180° because it's equipped with hydraulic outriggers. See how it stacks materials left or right 90° and picks up loads from the same extreme angle. See how it also performs all other functions of regular fork lift trucks.

Most spectacular of all is the way it performs within the confines of narrow, six-foot aisles—enabling you to utilize storage space you considered "lost"!

Such unique operation is made possible only because "Naro-Aisle-Stack" trucks are equipped with Towmotor Towmostatic Drive—the only drive of its kind that eliminates clutch, transmission, drive line, differential and shifting mechanism.

Ask for booklet, "Captures Lost Space," describing the new series. Write Towmotor Corporation, Cleveland 10, Ohio.



New Naro-Aisle-Stack Trucks made only by...



Gerlinger Carrier Co. is a subsidiary of Towmotor Corporation



Now! Monotrol on Pneumatics —
Only
HYSTER® has it!

EXCLUSIVE MONOTROL CONTROL SYSTEM—Performance proved on Hyster cushion tire trucks—now available on pneumatics.

FAST, SAFE HANDLING—Driver's right foot controls acceleration—forward-reverse. Left foot controls *braking*—truck *inching*. Hands free for full-time steering and load control.

EASIEST TRUCKS TO DRIVE—Monotrol with Hystamatic transmission means more production per manhour—reduced driver fatigue.

CALL your Hyster dealer for a demonstration.

INDUSTRIAL TRUCK DIVISION—Lift trucks, mobile cranes, straddle carriers

TRACTOR EQUIPMENT DIVISION—Construction and logging equipment

MARTIN TRAILER DIVISION—Heavy machinery hauling trailers

INTERNATIONAL DIVISION—Overseas manufacturing, sales and service

Factories: Portland, Oregon (Home Office) • Danville, Ill. • Peoria, Ill. • Kewanee, Ill. •

Nijmegen, The Netherlands • Glasgow, Scotland • Sao Paulo, Brazil • Sydney, Australia (Licensee)



HYSTER COMPANY
 INDUSTRIAL TRUCK DIVISION
 P. O. Box 847 Danville, Illinois

Circle 92 on Reader Service Card

MATERIAL HANDLING ENGINEERING

LETTERS TO THE EDITOR

Continued

moves. Please be assured that your article "Don't Be A Slave To Rule 41" will be drawn to this Committee's attention as representing a line of thought detrimental to the present test permit program.

While over-packing may be a problem at times, it is nothing compared to the present problem of under-packing. Reduction of packaging in an over-packed item should require considerable thought, laboratory testing, advice of a qualified packaging engineer and discussion of this problem with the transportation agencies involved. In this Bureau's opinion it should not be handled in your suggested method. While in your particular case it may have proved of some value, nevertheless in the majority of cases investigated by this Bureau, it has caused considerable hardship on all parties involved.

JACK N. STOUT, JR., Manager
Freight Loss and Damage Prevention
Bureau

Likes Directory

Sir:

We have been receiving acknowledgments for receipt of the MHE Directory. I just want to inform you that a great percentage of the replies include very complimentary remarks, such as:

"Very complete and valuable information."

"Handbook, Section A, will be very helpful to us."

"A very complete and handy reference."

"Interesting as well as helpful."

The above are merely a sampling of many favorable comments.

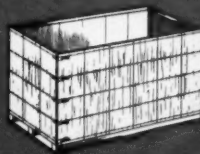
HOWARD BERNSTEIN
President
Atlas Lift Truck Rentals
& Sales, Inc.
Chicago, Illinois



JULY, 1960



WIREBOUND BOXES AND CRATES

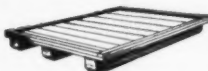


WIREBOUND PALLET BOXES



WIREBOUND BOXES and CRATES

You'll find it pretty difficult to beat the coconut shell for functional, dependable, rugged "packaging". Superstrong Wirebound Boxes and Crates provide these advantages and many more . . . saving you time, money and labor in your shipping problems. A trained Superstrong Wirebound engineer will give you the details . . . send for his expert help now!



WOODEN PALLETS

CORRUGATED FIBRE BOXES



CALL CANal 6-0973 or write Dept. 300

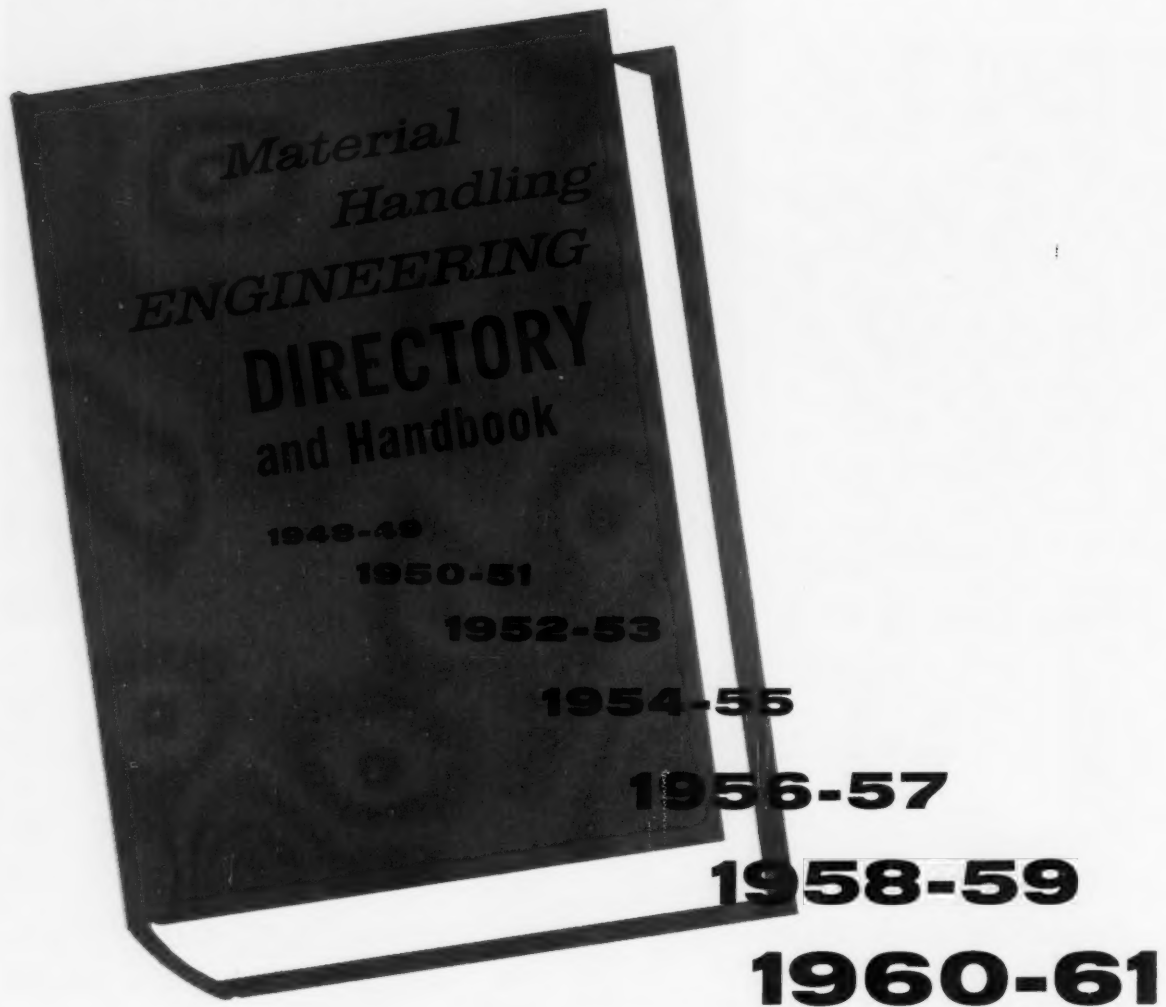
RATHBORNE, HAIR & RIDGWAY BOX CO.

1440 West 21st Place • Chicago 8, Illinois

REPRESENTATIVES IN ALL PRINCIPAL INDUSTRIAL AREAS

Circle 139 on Reader Service Card

A Handling Tradition . . .



14 YEARS' DEVELOPMENT... ***brings you the best Directory of all***

MATERIAL HANDLING ENGINEERING DIRECTORY AND
HANDBOOK
812 Huron Road
Cleveland 15, Ohio

Send me () copies of the 1960/61 MHE Directory (@ \$10.00 each)

I am enclosing a check in payment. ☐

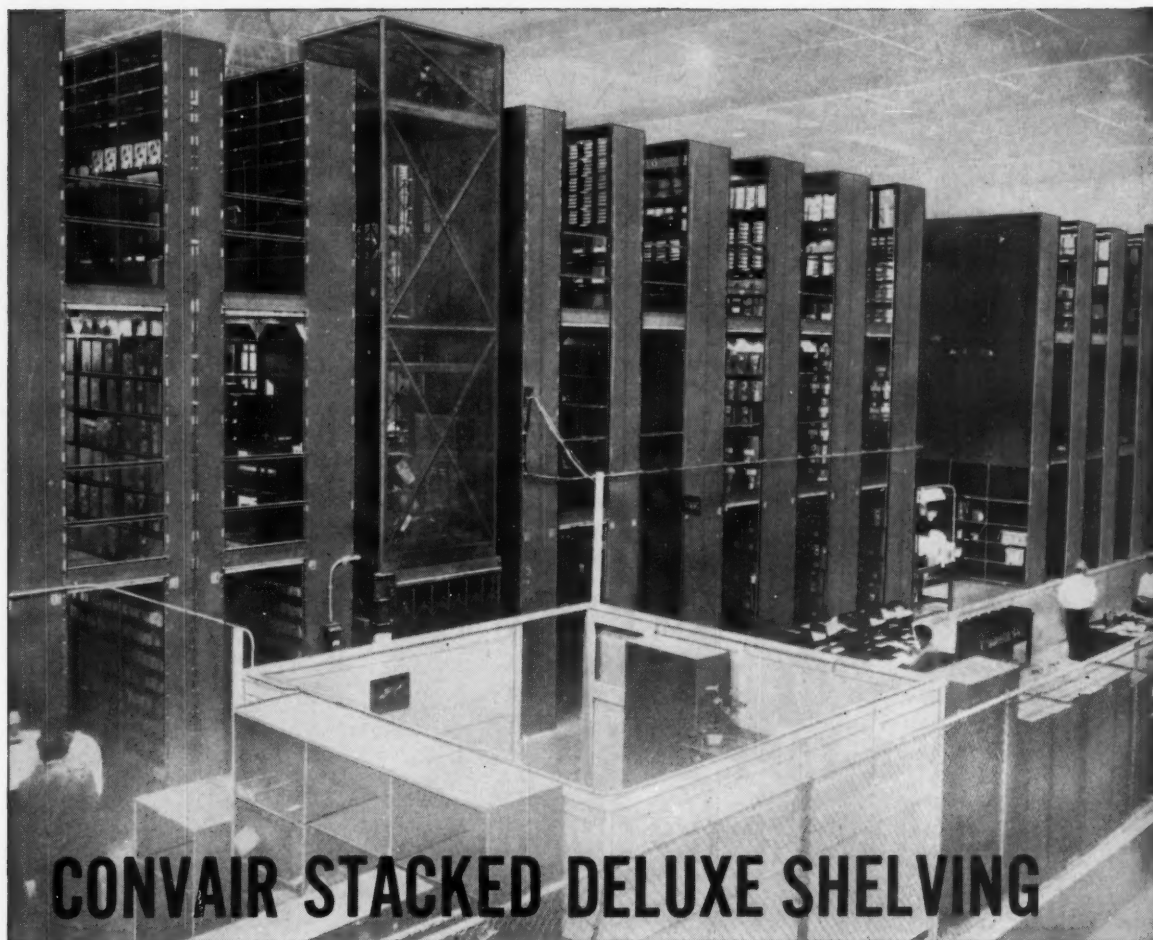
Bill me after I receive my Directory. ☐

Name

Street

City State

A giant reference file of material handling information at your fingertips! You'll find every type of handling equipment listed . . . the manufacturers who make it . . . where they're located . . . where to find their distributors. And it's combined with a first-time-out Handbook . . . the most complete source of technical data for the material handling engineer. Contains condensed, explicit engineering information.



CONVAIR STACKED DELUXE SHELVEING

**to save 20,000 square feet of space
and \$500,000 in parts handling!**

Using a three-level "skyscraper" arrangement of Deluxe steel shelving, Convair compressed 34,000 square feet of valuable *storage* space into 14,000 square feet of *floor* space.

The shelving holds an estimated \$11,000,000 worth of vital small missile parts previously stored in a number of different buildings. The tremendous savings resulted from (1) reduction of storage floor space required, (2) elimination of fleet of trucks required for parts transfer, and (3) improved efficiencies in finding and handling parts to production.

This huge installation of Deluxe shelving, 642 standard sections bolted together, is completely self supporting.

The Atlas missile builders stacked Deluxe up against all competitive makes, and chose Deluxe shelving because of its greater strength, faster assembly and better appearance at the lowest installed cost.

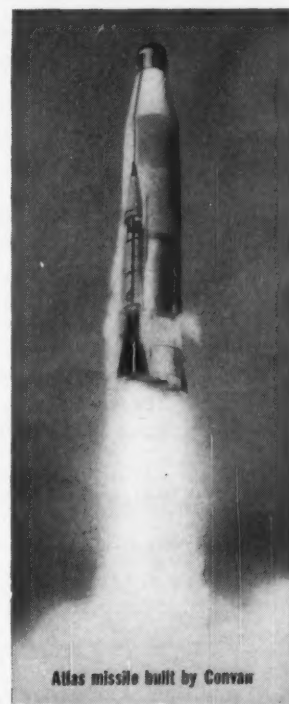
Write today for more details on this installation and the complete line of Deluxe steel shelving. Deluxe Metal Products Division, Dept. 70-G.

ROYAL METAL MANUFACTURING COMPANY

Royal

DELUXE METAL PRODUCTS DIVISION • 1 PARK AVE. N.Y. 16, N.Y.

Circle 55 on Reader Service Card



Atlas missile built by Convair



Unless YOU ARE NOW USING
GILMAN GUMMED TAPE

CHANCES ARE YOU ARE
WASTING UP TO 10%
OF YOUR TAPE COSTS
through excessive curling...

Gilman Gummed Tape, regular or reinforced,
is **COLD-ROLLED** to reduce curling to a minimum!

As a result, you use every foot of tape on the roll,
right down to the core!

*Stop paying for waste...switch to Gilman Tape
and get your full money's worth!*

Gilman Paper Company

630 Fifth Avenue, New York 20, N. Y.

Western Sales Office: Daily News Bldg., Chicago 6, Ill.

Mills at St. Marys, Georgia and Gilman, Vt.



If your paper merchant
cannot supply you—call us.

Please send Free copies of ☐ "Gummed Tape Tips from Gilman" ...
☐ Color Swatch Book. Also, Free sample ☐ "Cold-Rolled" Gummed
Tape ☐ "Cold Rolled" Reinforced Tape ☐ Asphaltic ☐ Non-asphaltic

COMPANY NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

INDIVIDUAL _____ TITLE _____

OUR PAPER MERCHANT _____ MHE



*Trade Mark



Circle 80 on Reader Service Card



perspectives on productivity

Three plant management men offer their views on how proven ideas from Acme Steel are increasing productivity and lowering costs in vital areas of plant operation.

**ACME
STEEL**



a production
supervisor reports
on Acme Steel
STRAPPING

“Unitizing and palletizing with Acme Steel Strapping has certainly streamlined our in-plant handling. It's a decided improvement on the old style handling of the wide variety of parts destined for Clark's materials handling, construction machinery and automotive products.

Strapping and powered strapping tools have also helped us raise productivity in shipping. Shipments reinforced with steel strapping not only stay secure during transit but ease the customer's handling job. That's why we ask our suppliers to strap their shipments to us.”

Acme Steel Strapping ideas are helping companies in all fields boost productivity in hundreds of ways. These include improved methods for closing, unitizing, bundling, baling, bracing, reinforcing and tying packages and products of any size, any shape. And Acme Steel's broad assortment of strapping tools—automatically or manually operated—offer substantial savings on every type application, no matter how specialized.

Your local Acme Idea Man will show you exactly how.

**Ken Metzger, Production
Control Supervisor, Clark
Equipment Company,
Buchanan, Michigan.**



**ACME
STEEL**

IDEA LEADER IN
STRAPPING

ACME STEEL COMPANY

13515 Perry Avenue • Chicago 27, Illinois

a materials handling engineer reports on Acme Steel **FRAMING**

Ralph Samples, Materials
Handling Supervisor, Uni-
versal Match Corporation,
Armament Division, Fer-
guson, Mo.

“Secure and adequate materials storage is vital to the production of our missile launchers. AIM Brand Slotted Angle has solved this problem perfectly. Its pattern of slots and holes is accurately located so any employee can quickly bolt pre-cut lengths together and end up with a really professional job on any design.

This framing material's simplicity and versatility has suggested many other applications. We use it for carts, tables, equipment fixtures, platforms, ladders and even packaging. It has developed into one of our most productive materials.”

No other manufacturer offers the application know-how and technical assistance available through Acme Steel with its nation-wide AIM Brand distributors.

Newest development in the Acme Steel framing line is AIM Brand heavy-duty materials storage rack. It ushers in the first positive protection against beam disengagement by fork lift trucks—through a unique safety load locking device*—as well as greater load capacity and stability. Your local AIM Brand distributor has all the facts.

**ACME
STEEL**

IDEA LEADER IN
FRAMING

**AIM
BRAND**

ACME STEEL COMPANY
13515 Perry Avenue Chicago 27, Illinois

* Patent applied for.

a sales manager
reports on
Acme Steel
STITCHING

“Packaging quality and cost are very important factors in our competitive sales picture. The saw blades we produce for industrial and agricultural users must be packaged securely, yet economically enough to keep prices attractive. In fabricating and reinforcing our special corrugated containers, we find that Acme Steel stitching methods total out lowest in cost-per-closure. The smooth, nonstop operation of these high-speed machines not only results in better packaging, but eliminates production bottlenecks.”

Acme Steel wire stitches are cut and driven with machine-gun efficiency from smooth, continuous coils of wire. No method—not glue, not tape, not staples—equals wire stitches for closure and fastening security and production economy. They ignore temperature and moisture, are unbeatable in strength, uniformity and low labor cost. And only Acme Steel manufactures complete lines of both stitching machines and wire—for box closure, book binding or product assembly fastening of virtually any type material. How can wire stitching most profitably increase your productivity? Ask your local Acme Idea Man.

Harvey Osterholm, Sales
Manager, Saw and Clutch
Disc Divisions, Curtis
Manufacturing Company,
St. Louis, Mo.



**ACME
STEEL**

IDEA LEADER IN
STITCHING

ACME STEEL COMPANY
13515 Perry Avenue • Chicago 27, Illinois

CALENDAR of EVENTS

July 19-21

1960 Western Packaging &
Material Handling Exposition
Pan Pacific Auditorium
Los Angeles

September 7-9

ASME Joint Automatic Control
Conference
Mass. Conference Institute of
Technology
Cambridge, Mass.

September 12-13

The Material Handling Institute,
Inc. Fall meeting
The Cavalier Club
Virginia Beach, Virginia

September 27-30

The Association of Iron and Steel
Engineers
Exposition and Convention
Cleveland Auditorium
Cleveland

October 14-23

First International Packaging
Machinery Show
Paris

October 17-21

American Society for Metals
Metal Show
Philadelphia Trade and Convention
Center
Philadelphia

October 31-November 2

Packaging Institute, National
Packaging Forum
Statler Hilton
New York

November 1-3

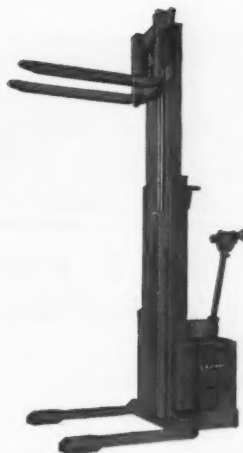
Material Handling Institute
Central States Show
Kentucky Fair and Exposition
Center
Louisville, Kentucky



COST CUTTERS

WALKIE PALLET STACKER

Tiers 2,000 lb. pallet loads 10 ft. high from 6½ ft. aisles. 24 volt power. Three speeds forward or reverse. Low price includes batteries and charger.

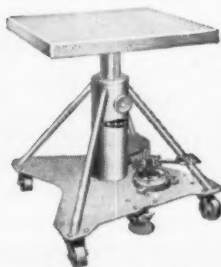
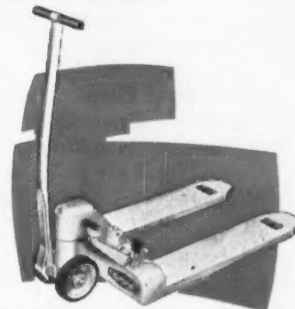


WALKIE PALLET TRUCK

24 VOLT POWER. Three speeds forward or reverse. Only 20½" longer than load. Low price includes batteries and charger. Capacity: 4,000 lbs.

LIGHTWEIGHT HYDRAULIC PALLET TRUCK

Rugged, maneuverable. 270° turning radius. Reinforced handle. One-piece formed fork construction. Separate lift and lower foot pedals. Cap.: 2,000 and 3,000 lbs.



PORTABLE HYDRAULIC ELEVATING TABLE

Positions work, supports long pieces, simplifies die handling. Convenient foot-pedal operation. Rotating top. Telescopic and non-telescopic models. Capacity: 2,000 lbs.

MAIL THIS COUPON

The RAYMOND CORPORATION

3388 Madison St., Greene, N. Y.

Please send Bulletins on RAYMOND Equipment checked below:

- ☐ Walkie Pallet Stacker
☐ Walkie Pallet Truck
☐ Lightweight Pallet Truck
☐ Portable Elevating Table

NAME _____ TITLE _____
COMPANY _____
STREET _____
CITY _____ STATE _____



HANDLING ROUND THE COUNTRY

12 Firms To Help Develop Fuel Cell

Twelve material handling equipment makers have signed agreements to help develop a fuel cell to power industrial trucks. The agreements were signed with Exide Industrial Division of The Electric Storage Battery Co.

The manufacturers are:

Automatic Transportation Co.
Baker Industrial Truck Division, Otis Elevator Co.

Barrett-Cravens Co.

Clark Equipment Co.

The Elwell-Parker Electric Co.

Kalamazoo Mfg. Co.

Lewis-Shepard Products Inc.

Lift Trucks Inc.

Mercury Mfg. Co.

The Raymond Corp.

Silent Hoist & Crane Co.

Yale Materials Handling Division, The Yale & Towne Mfg. Co.

They and Exide will work closely on electric industrial truck design and fuel cell design. They hope to achieve more versatile trucks and more compact, maneuverable equipment. (See pg. 50 for the latest on fuel cells).

Overseas Manufacture

Two firms announce agreements to have their products made by foreign companies.

G. H. Tennant Co. will have three different models of power sweepers made at R. S. Stokvis & Zonen in Rotterdam, Holland.

Clark Equipment Co.'s line of fork trucks will be made in Christchurch, New Zealand, by Andrews & Beaven.

Clark also has acquired a 50 percent interest in Eximia, Buenos Aires. This firm will make and sell Clark's line of MH and construction equipment in Argentina.



BREAKING GROUND for a new multi-million-dollar engine plant for Allis-Chalmers Mfg. Co. is L. C. Daniels, general manager of the Engine-Material Handling Division. Taking part in the ceremony on the site at Harvey, Ill., are (l to r) A. W. Van Hercke, director of engineering, Tractor Group, and a vice president of A-C; William B. Kane, mayor of Harvey; Daniels; John Ernst, general works manager, Tractor Group, and a vice president of A-C; Owen J. Higgins, Harvey Works general manager; E. J. Mercer, general manager, Construction Machinery Division, and a vice president of A-C, and J. C. Baseheart, Engine sales manager, Engine-Material Handling Division. The new plant will enable Allis-Chalmers to build a broad line of diesel, gas, and LPG engines.

Named to Board

Jervis C. Webb has been appointed to the newly formed board of Continental Conveyor and Equipment Co. He's president and general manager of the Jervis B. Webb Co. of Detroit.



Continental was created when Continental Gin Co. sold its Materials Handling Division. Facilities of the new company will be located in a new 70,000-sq-ft plant in Winfield, Ala., due to be completed this year.

The new Continental company is headed by Nelson J. Kemp, board chairman. Continental Conveyor will continue to serve distributors and customers of Continental Gin without a basic change in policies. The new firm will retain the same staff.

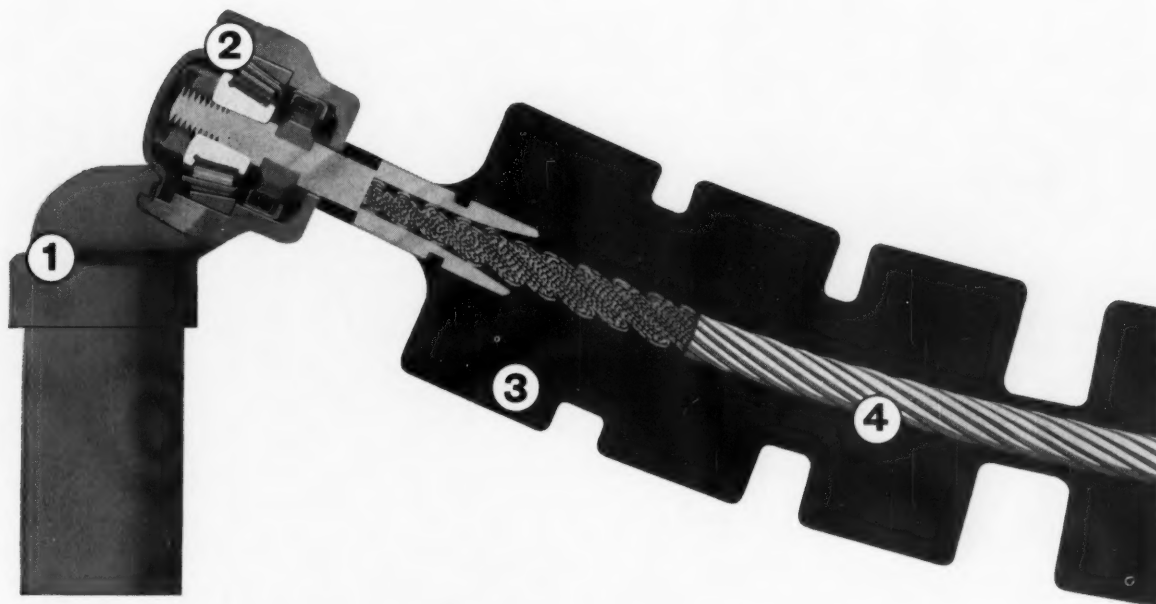
New Packaging Pact

A close working agreement has been concluded between Packaging Consultants Inc. of the United States and the French Packaging Institute. Purpose is to promote mutual cooperation between firms in the United States and Europe.

Packaging Consultants Inc. has opened an office in Paris, managed by Pierre J. Louis, packaging consultant. The U.S. firm, in turn, has been named American office of the French Packaging Institute, with Thomas P. Wharton as manager.

Wharton says the arrangement will provide a much needed channel of communication for American firms interested in starting production in Europe, cultivating European markets, granting or obtaining license or patent agreements, developing mergers, or finding representatives in Europe.

SIMPLICITY IS THE SECRET....



Joy Limberoller® Conveyor Idlers

The Joy Limberoller Conveyor Idler gives many times the normal service life because we made it as simple as possible. It is a flexible troughing idler with only *two* bearings and *one* moving element.

This simplicity means that there is nothing to get out of order. The two bearings are mounted in swivels (1) up in the support brackets, away from spillage. This prevents bearings (2) from clogging with dirt or freezing up. The corrosion-resistant neoprene rolls (3) absorb impact and cushion the load to give longer belt life. Where materials are wet or sticky, the "live action" of neoprene permanently bonded to special wire rope (4) provides constant flexing that prevents build-up on the idler.

Mounting is so simple that Limberoller idlers can be changed while the belt is running. Because the idler hangs in a true natural arc, it cushions and supports the entire belt, training perfectly and eliminating spillage. Limberoller idlers can be installed on your present equipment.

If you have a problem handling bulk materials, find out how the simple design of Limberollers can solve it. For complete details write for Bulletin 1252-90.



EQUIPMENT FOR ALL INDUSTRY



Dust Collectors



Compressors



Conveyors
and Idlers



Fans and
Blowers

JOY

Joy Manufacturing Company
Oliver Building, Pittsburgh 22, Pa.

In Canada: Joy Manufacturing Company
(Canada) Limited, Galt, Ontario



**LEGAL FOR
TRADE!**

Sealed by Bureau of Weights
& Measures Prior to Shipment

The Remarkable *Dillon*
MODEL P SCALE
OUTSTANDINGLY ACCURATE!
COMPLETELY AUTOMATIC!
FULLY GUARANTEED!

8 different capacities: 0-250, 0-500, 0-750, 0-1000, 0-2500, 0-5000, 0-7500 and 0-10,000 lbs. — ALL accurate to within 1/10 of 1% of full range! Sealed by Bureau of Weights & Measures prior to shipment. Large, 16" dial. Quick-set knob cancels out tare loads instantly. Ball bearing swivel hook, sealed mechanism, strong plastic crystal over dial. Shock-proof and full dampened against vibration. Truly America's *finest*, automatic suspension scale yet priced **LOW** to suit the average shop budget.



**COSTS YOU NOTHING TO INVESTIGATE.
WRITE FOR PROFUSELY ILLUSTRATED
BROCHURE AND FULL COLOR PICTURE.**

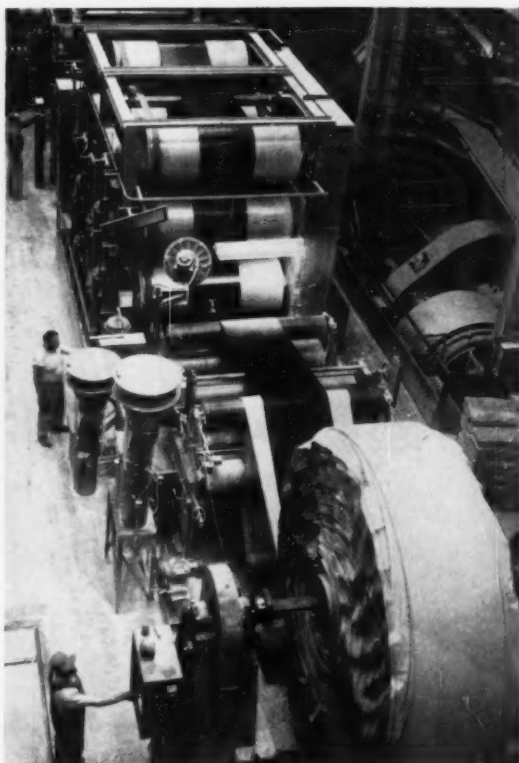
W69

W.C. Dillon & CO., INC.

14568Q Keswick St.,
Van Nuys 8, Calif.

Circle 60 on Reader Service Card

HANDLING 'ROUND THE COUNTRY



CALENDERING machine turns out rubber belting of exact thickness, uniform quality. After operation, belt is rolled into a coil.

Spins Ribbons of Rubber Belting

A high speed automatic belt calendering operation at Goodyear Tire & Rubber Co. turns out two to three miles of belting a day. A four-roll calender and special controls improve uniformity, accuracy, and permit greater compounding freedom.

The controls are two X-ray devices. One senses the gage of incoming components. It reports the thickness to an electronic panel, which then corrects to keep the thickness uniform. The second X-ray gage measures and reports on the finished thickness.

After calendering, the belt moves through a giant 12-roll cooling line. Finally, the belt winds into a coil, ready for curing.



X-RAY GAGE keeps a constant check on conveyor belting as it passes through calendering machine. Gage checks belt thickness.

MATERIAL HANDLING ENGINEERING

AUTOMATIC SLASHES GAS LIFT TRUCK OPERATING COSTS **3** WAYS



1

CUTS OUT-OF-POCKET COSTS

Savings up to 30% on fuel costs achieved through use of a simplified electric power train. New 3-way adjustable seat increases driver efficiency...reduces fatigue. Simplified balanced design saves on downtime.

2

CUTS MAINTENANCE COSTS

Hydraulic pump life increased by 50%. Oversize brakes last up to 30% longer and are adjustable without removing wheels. Advanced-design roller mounting increases life of uprights. No clutch or hydraulic torque converter to cause trouble.

3

INITIAL COST REDUCED

No longer a premium-priced truck, but priced competitively with trucks which use hydraulic torque converters.

LEARN MORE about how Automatic's gas-operated, electric-driven trucks can slash your operating costs. Available in capacities 3,000 to 10,000 lbs. with cushion tires, 3,000 to 8,000 lbs. with pneumatic tires. Write today.



AUTOMATIC®

AUTOMATIC TRANSPORTATION COMPANY

Division of The Yale & Towne Manufacturing Company

141 West 87th Street, Dept. K.O., Chicago 20, Ill.

**FIRST IN IMAGINATION
FIRST WITH REALITY**

**LEARN MORE ABOUT
AUTOMATIC'S COST-CUTTING
LIFT TRUCKS**

Please send me complete details about
Automatic Gas-Operated, Electric-Driven
Lift Trucks, in capacities
of _____ lbs. _____ lbs. _____ lbs.

NAME _____

FIRM _____

ADDRESS _____

CITY & ZONE _____

STATE _____

Circle 17 on Reader Service Card

NEW

CHRISTIE

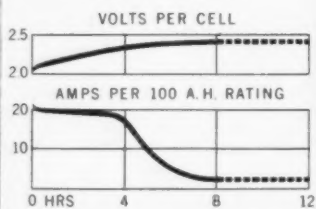
SILICON BATTERY CHARGERS

FOR
ELECTRIC TRUCKS
AND FORK LIFTS
**ATTENDANT
FREE!**



Stepless charging from start to end.

Less gassing, less heat,
longer battery life!



- Fully Automatic Mag-Amp Control. No relays. No moving parts. No timer necessary. Virtually maintenance free.

- For Lead-Acid and Edison type batteries. 8 hour charging of batteries up to 720 A.H.

**Get the Complete Story
in the New Christie Catalog
Write for Bulletin BC-60**

CHRISTIE ELECTRIC CORP.

6732 South Victoria Avenue
Los Angeles 43, California

*Proven Quality through
30 Years of Battery Charger Manufacturing*

Circle 39 on Reader Service Card

HANDLING 'ROUND THE COUNTRY

continued

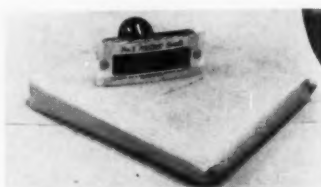


SELF-DUMPING hoppers carried by fork trucks have reduced waste handling time and costs at U. S. Steel Corp's South Works in Chicago. The hoppers, 1-yd capacity made by Roura Iron Works, carry checkers from relined blast furnaces to the dumping site (above). The company once used a manual system with motorized carts, which often were idle. Under the present system, the hoppers are handled by the existing fork truck fleet. Hoppers are spotted at the furnaces, making for faster work because the men don't have to leave to haul waste. Hoppers also collect flue dust, and perform a variety of jobs.

Easy Identification

Wrapped packages of miscellaneous printed material are easily identified at the Eli Lilly And Company, Indianapolis.

These packages, consisting of office and factory forms, adver-



tising pieces, etc., are stored in warehouses throughout the city.

Lilly uses a Multistamp in the Bindery Section of its Printing Department. A supervisor prepares a stencil for the wrapper from the work order. The company finds that the Multistamps enables them to put on 'all the information they want.

The number imprint is coded to give the quantity, form number, and the print order number. Up to two other lines can be added to give actual titles, of value on advertising pieces.

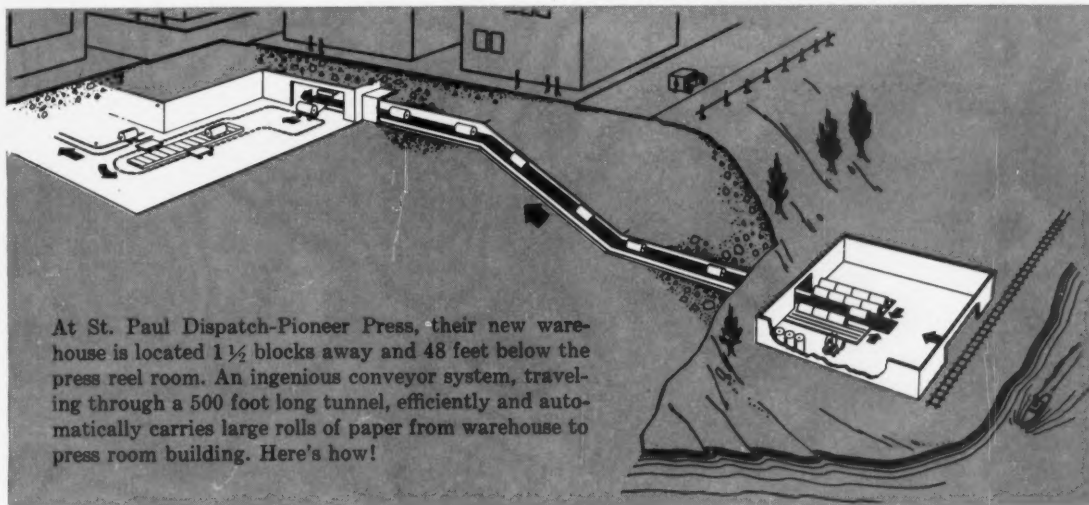
In the News . . .

Three men have been appointed to the Michigan State University School of Packaging Foundation Inc. They are L. A. Curtis, Package Machinery Co.; William W. Finn, St. Regis Paper Co., and J. F. Mitchell, Chrysler Corp. The Foundation was started in 1957 to raise \$2 million for a new School of Packaging building. Contributed to date: \$250,000.

This is the 50th anniversary of the International Harvester Co.'s Tractor Works. The Works has turned out more than a million items during the half century. Located in Chicago, the Works started out in a tent and barn. Today, its 33 buildings cover 82 acres. The firm normally employs 5,000.

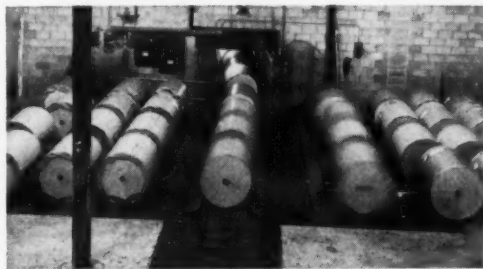
American Chain & Cable Co. Inc. has moved its Chicago District Sales offices and warehouse to larger quarters. The new address is 2040 N. Hawthorne Ave., Melrose Park, Ill. Purpose is to serve the Midwestern trading

This Webb automatic conveyor system hustles newsprint thru 500 foot tunnel

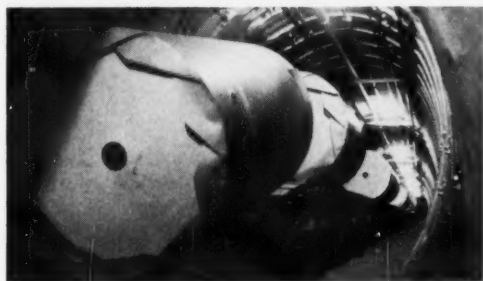


At St. Paul Dispatch-Pioneer Press, their new warehouse is located 1 1/2 blocks away and 48 feet below the press reel room. An ingenious conveyor system, traveling through a 500 foot long tunnel, efficiently and automatically carries large rolls of paper from warehouse to press room building. Here's how!

ROLLS REALLY KEEP ROLLING

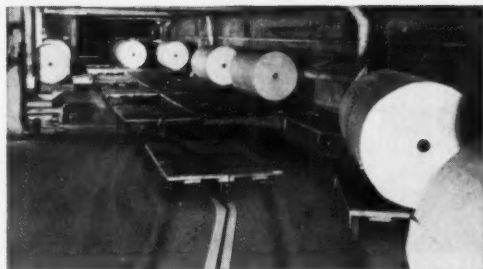


1. At warehouse, the newsprint rolls (60" long x 36" in diameter and weighing 1500 lbs.) are removed from railroad cars by lift trucks and stacked for storage or placed on the tunnel conveyor for current use. Systematic loading of conveyor is accomplished by two sets of kicker plates which operate in series to propel four rolls at a time into spaced positions on the conveyor. Kicker plates are actuated by bumper switches and air pressure.



2. Tunnel conveyor is divided into four individually powered sections which can be operated "continuous-run" or separately for programming. The ascending section is built on a 15-degree incline and its slats are rubber coated to preclude slipping of load. A continuous live-supply of rolls (spaced 18 inches apart) is maintained by means of electric eye controls at beginning and end of each section.

3. When rolls reach the press room basement, they are automatically pushed off the tunnel conveyor and onto Towveyor trucks. Thirty-one of these trucks are attached to a moving chain loop in the floor to provide additional live-storage of rolls. In the reel room area, a semi-automatic "kick-off" pushes the rolls from the Towveyor trucks onto press room trucks as needed.



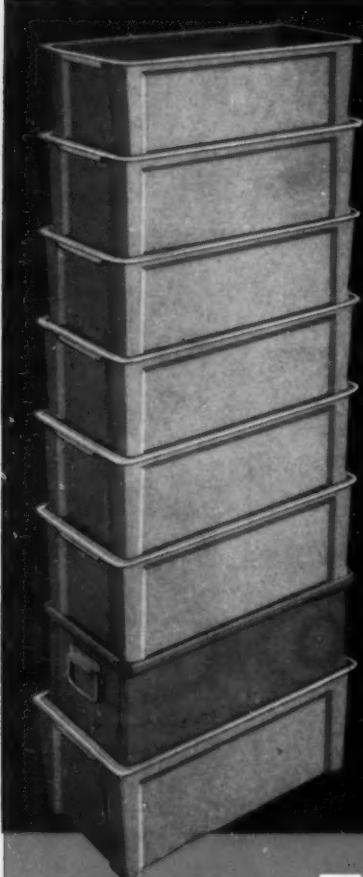
System capacity is 130 rolls, manual handling is eliminated, live and stationary storage is provided, and high efficiency is assured by the soundly engineered solution of this unusual material handling problem.

Circle 170 on Reader Service Card



JERVIS B. WEBB COMPANY

8935 ALPINE AVENUE • DETROIT 4, MICHIGAN
SPECIALISTS IN CUSTOM CONVEYOR SYSTEMS



Durable

Lightweight

Stacks with

Metal Boxes

All in one by TOTELINE

Now . . . a sturdy tote box of strong-as-steel molded fiber glass which stacks interchangeably with your present metal boxes of the popular 10 by 20 by 8-inch size.

You can benefit from the advantages of durable molded fiber glass immediately by introducing Toteline Model 538-1 into your present system. Then replace metal boxes with Toteline boxes as the metal boxes need replacement.

Toteline boxes last indefinitely without maintenance. They are immune to rust . . . you can't dent them and they never need straightening. There are no sharp edges . . . just smoothly rounded corners. Model 538-1 cleans easily with hot water.

Molded handles are a part of the integral, one-piece stacking lip. Steel wire, completely concealed within the edges of the box, adds strength and rigidity.

For further information and descriptive catalog, just cut out this coupon and clip to your letterhead. Please furnish your name and title.

NAME _____

TITLE _____

MOLDED FIBER GLASS TRAY CO., Linesville, Pa.

*Chosen to Represent the U.S Reinforced Plastics Industry
at the 1959 International Trade Fair in Zagreb, Yugoslavia*

HANDLING 'ROUND THE COUNTRY

continued

area better and faster. The new building has 48,000 sq ft for warehouse and 7,600 sq ft for offices.

The Export Packers Association, seeking new members, welcomes inquiries from anyone interested. Purpose of the association is to unite packagers at the Port of New York, to reform abuses, and to promote the business of the members. The association currently is working on equitable rates, limiting liability under a uniform contract, savings through central purchasing, exemption from a 3% sales tax, setting up a central collection bureau for delinquent accounts.

Improved Wheel Cuts Downtime Sharply

Truck wheel life increased from a month to more than a year and a half to end serious downtime for Cadillac Coffee Company, Detroit.

They have a single walkie lift truck, no standby. Average load is 2 tons. Sharp-edged coffee beans sprinkled on the floor



dug into the tires, tore them, chunked them out. Heavy loads peeled the wheels off the hubs. Wheel changes took 2 hours, a big time loss.

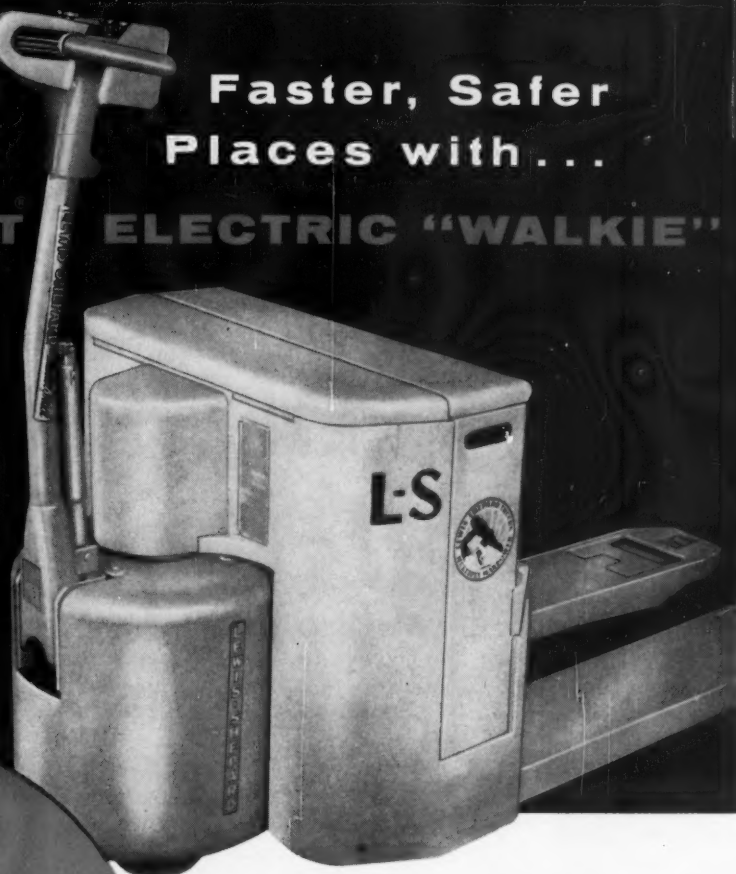
Cadillac tested many types of wheels with discouraging results, finally discovered Disowheels. They're made of polyurethane elastomer by Disogrin Industries, Inc.

The wheels were installed 18 months ago, are still operating. The picture compares one of them with old types. Battery charges last longer because the new wheels roll easier.

Circle 120 on Reader Service Card

Move Loads Faster, Safer in Tight Places with... L-S JACKLIFT ELECTRIC "WALKIE"

More than 5 years of engineering research makes the L-S JACKLIFT Electric smoother, safer — easier to handle. It's your best buy in "walkie" trucks.



Fingertip Control: JACKLIFT's unique ROTO-CAM handle puts all the controls at the operator's fingertips. One convenient location houses traction speeds, forward and reverse, braking, lifting, lowering, key switch and horn. Dynamic Braking, exclusively L-S, provides smooth, even operation down steepest ramps; Controlled Plugging gives instantaneous and smooth reversal of direction.

Check these outstanding features — all engineering "firsts" with Lewis-Shepard:

- Vertical Handle Operation
- Removable Drive Unit
- Compound Wound Motors
- Timed Acceleration
- Dynamic Braking
- High Pressure Hydraulics
- Flexible Power Cables
- Self-Contained Hydraulics
- Lubricated-for-Life Design
- Controlled Plugging

Lewis-Shepard offers the most complete line of high lift and low lift "walkie"-type trucks available. Mail coupon below for complete information.



LEWIS-SHEPARD®

The "MASTER" Line

The COMPLETE line of Materials Handling Equipment



LEWIS-SHEPARD PRODUCTS, INC. • 137 WALNUT STREET • Watertown 72, Mass.

Please send me your Catalog 34-1 on JACKLIFT "Walkie" Electric Pallet Trucks and Circular 34-H on your NEW Roto-Cam Handle

Name _____ Title _____
 Company _____
 Address _____
 City _____ Zone _____ State _____

Circle 111 on Reader Service Card



JF
SERIES

EASY SAFE EFFICIENT LIFTING!

IT'S EASY to raise or lower loads while pulling a trolley mounted Coffing Quik-Lift Electric Hoist. The pistol-grip control station and the combination strain cable and control cord makes this possible. The light but strong aluminum housing provides ease of portability. Changing voltages, limit switch, type of suspension or chain is quick because the housing is in sections.

FOR SAFETY the control station is made of non-conducting plastic in which the voltage is reduced to 115 volts and the push-buttons are interlocked. The V-type brake which provides maximum braking surface and positive control of loads is another safety measure.

FOR EFFICIENCY this hoist has been designed to bring heavy-duty performance plus durability to the portable hoist field. It will pay you to specify Coffing Quik-Lift. Twenty models—capacities range from ¼ to 2 tons. Ask your distributor for details or write for Bulletin ADH-65.

COFFING HOISTS

DUFF-NORTON COMPANY

COFFING HOIST DIVISION • Pittsburgh, Pa.

COFFING HOISTS

Ratchet Lever • Air
Hand Chain • Electric



DUFF-NORTON JACKS

Ratchet • Screw
Hydraulic • Worm Gear

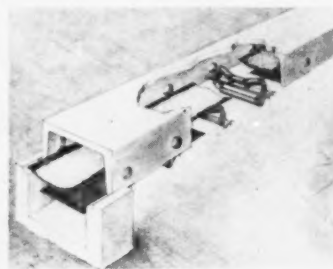
Circle 43 on Reader Service Card

HANDLING 'ROUND THE COUNTRY

continued

Concrete Channels

U-shaped prestressed concrete channels have been developed as a conveyor support by The Frank J. Madison Co. of San Francisco. The system is unusual. The channel is inverted



to serve as a protective cover for the belt, drive, idlers, and material. (See photo).

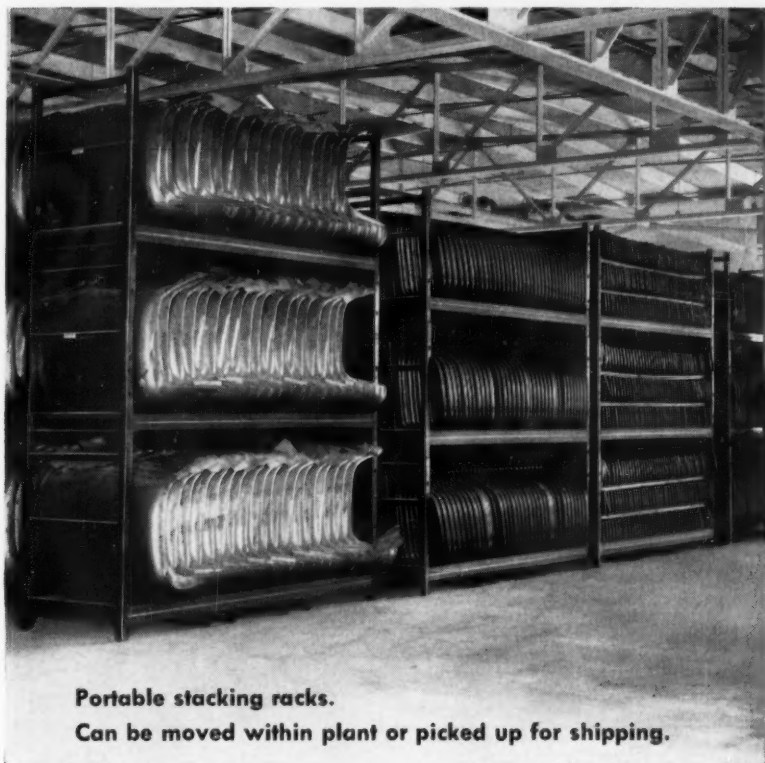
Madison officials say the chief advantage is lower initial cost. Inserts for idler attachment are integrally cast in the channels, eliminating need for steel hangers. Supporting piers and changeovers may be precast or cast-in-place. Use of concrete makes the system particularly useful in corrosive atmospheres.

Prepackaging Trends

The government plans to emphasize package inspection and test weighing to meet the rapid trend toward packaging in advance of sale. The Office of Weights and Measures, Bureau of Standards, has reported to scale makers that the great amount of prepackaging is changing ideas of weights and measures inspection. Malcolm W. Jensen, assistant chief of the Office of Weights and Measures, says many scales in prepackaging are in bad shape. Or they are improperly used. Jensen says they should be corrected or replaced. Further, he concludes, scales should only be applied to the jobs for which they are intended. Large capacity scales should not be expected to weigh small packages accurately.

EMI

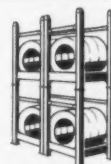
RACKS FOR ANY STORAGE OR SHIPPING PROBLEM



Portable stacking racks.

Can be moved within plant or picked up for shipping.

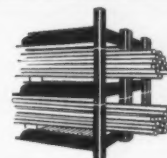
**Coil and
reel racks**



**Stock boxes
—solid or KD**



**Bar, pipe
and
tube racks**



**Air-Row Head
adjustable
pallet racks**



EMI has the most complete range of storage and material handling racks in the industry. Shown here are examples. If you have a special problem, we will design racks to your exact specifications.

METAL WORKING FACILITIES

EMI offers complete metal working facilities including tubular, structural and special shapes.



Round



Square



Rectangular



Step



Zee



Channel

YOU CAN STACK OR SHIP ANYTHING ON EMI RACKS

Write for our
complete catalog!

**EQUIPMENT
MFG. INC.**

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NEWS ABOUT AMHS



LEFT to right, seated: L. Arsenault, T. Clune, D. Britton; standing, L. Magyar and A. L. Labrie.

Committee Meets for Canadian Show

MONTREAL—T. Clune, Kraft Foods Ltd., has been named to head the committee planning the conference section of the 3rd Canadian National Material Handling Show and Conference. This will be held in Montreal at the Show Mart, September 26-30. Announcement was made by Emile Dupre, general show chairman. Show and Conference are being sponsored by the Montreal Chapter. Other members of the committee: L. Arsenault, Canadian National Railways; D. Britton, G. N. Johnston Equipment Co. Ltd.; L. Magyar, Johnson and Johnson Ltd.; A. L. Labrie, Dow Brewery Ltd.

Louisville Tech Sessions Planned

Paul A. Fisher, chief engineer of Louisville, Ky., operations of Anaconda Aluminum Co., has been named general chairman of the Technical Conferences that will be held in conjunction with The Material Handling Institute Central States Show.

This regional trade show and conferences will be held in Kentucky Fair and Exposition Center, Louisville, from November 1 through 3.

The technical conferences will



be produced by Region No. 4.

The steering committee for the technical conferences is composed of: William P. Moroney, Delco-Remy Div., Anderson, Ind.; Bruce Kefgen, Kefgen-Moore Co., Flint, Mich.; Albert E. Gasvoda, AC Spark Plug Div., Flint, Mich.; Robert Dilts, Aro Equipment Corp., Bryan, Ohio; and Frank F. Fortunato, Everwear Mfg. Co., Newport, Ky.

Also, John Klomp, Continental Moors Corp. Muskegon, Mich.; C. C. Brumleve and Rod D. Dew, Cardinal-Carryor Co., Louisville, and Harry W. Embry, Jr., Embry Bros., Louisville.

EAST PROVIDENCE—The Narragansett Chapter heard a talk by Kenneth Sutton of the Alvey Conveyor Co. at its May meeting.

AMHS National Vice-Presidency

Due to a change in job responsibilities, Neil A. Bryson, AMHS first vice president, has resigned this office. His new title and address are: Manufacturer of Manufacturing, Power Transformer and Circuit Breaker Division, Canadian Westinghouse Co., Ltd., Sanford Avenue, Hamilton, Ontario. Any business formerly handled by Bryson should be directed to AMHS president Stephen C. Traudt.

Computer Fund Reaches Goal



COMPUTER donation is presented by W. B. Semco (right) to Prof. Homer H. Grant of USC.

LOS ANGELES—W. B. Semco, president of the L.A. Chapter, recently presented a \$2500 check to the University of Southern California. This donation put an accumulating fund over its goal for the purchase of an electronic analog computer. Professor Homer Grant accepted the check on behalf of the university's school of engineering. The computer will be put to work in assisting faculty and students in the industrial engineering department. Presentation of the gift took place at the Material Handling and Packaging Conference at Chrysler Training Center.

NEW POWER-CRATER Engine in 3 NEW "F" SERIES LIFT TRUCKS

*gives outstanding performance
...unequalled economy*



F30-24
3000-lb capacity
F40-24
4000-lb capacity
F50-24
5000-lb capacity

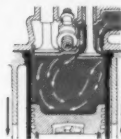
Superior mixing of fuel and air in POWER-CRATER engine gives the new "F" series trucks maximum power out of every drop of fuel . . . also a new high in combustion efficiency resulting in new fuel economy.

Greater power, coupled with proper balance and weight distribution, results in top all-around performance.

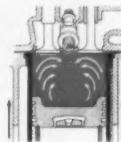
Let your Allis-Chalmers dealer show you what the POWER-CRATER engine — plus other outstanding features of the new "F" series trucks — can mean to you in terms of performance and savings. Send for Bulletin BU-640. Allis-Chalmers, Milwaukee 1, Wisconsin.

POWER-CRATER is an Allis-Chalmers trademark.

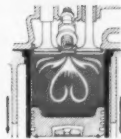
Inside story of POWER-CRATER engine performance



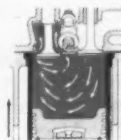
1
EFFECTIVE MIXING of fuel and air begins during intake, with swirling turbulence set up by unique crater-shaped piston — an Allis-Chalmers development.



2
FINAL THOROUGH BLENDING takes place during the compression stroke, as the violent turbulence continues.



3
COMPLETE COMBUSTION results from this proper blending of fuel and air.



4
QUICK-CLEARING EXHAUST — burnt gases clear rapidly and completely through large clear-flow manifold, permitting maximum air-fuel charge on intake.

BH-141

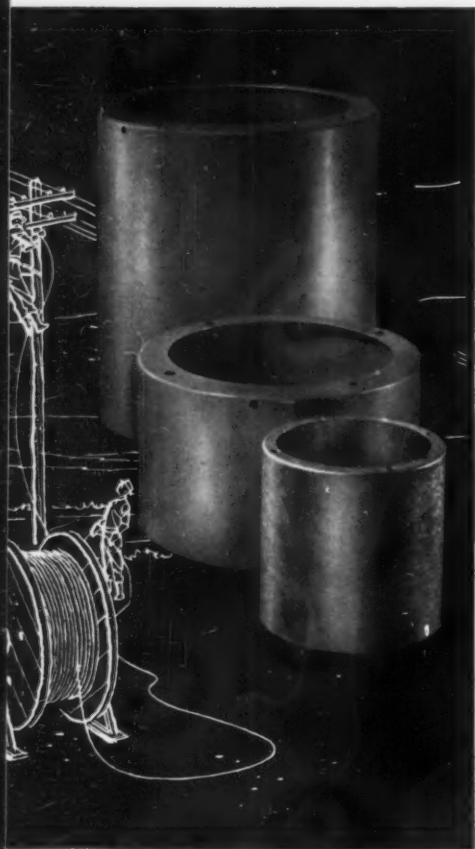


ALLIS-CHALMERS

POWER FOR A GROWING WORLD

Circle 5 on Reader Service Card

STANDARD REPUBLIC MATERIAL HANDLING PRODUCTS SOLVE STOCK, STORE, SHIP PROBLEMS

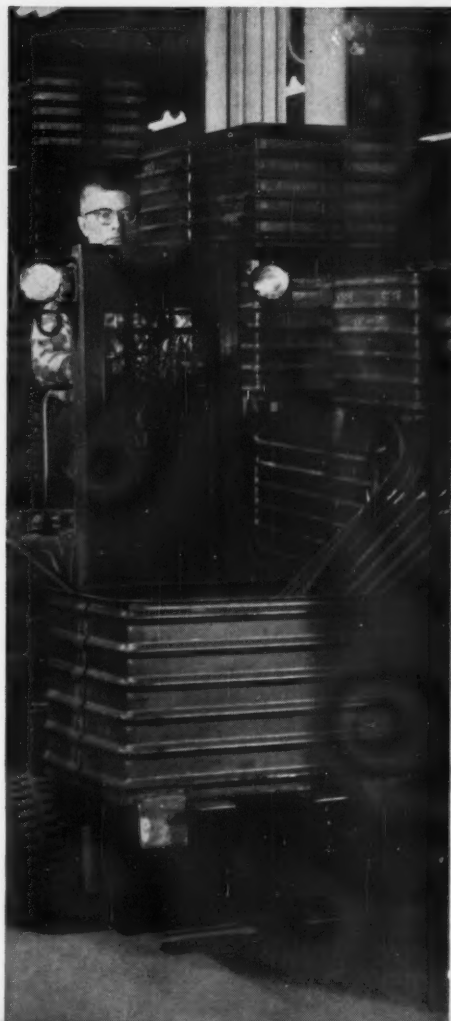


REPUBLIC FLANGED STEEL TRAVERSES save time, labor, money. Simple four-way assembly; no special tools required; long, trouble-free service. And Republic Steel Traverses are reinforced where it counts—at flange base and bolt holes. This makes possible the use of lighter gage steel, reduces weight 20%, with highest strength-to-weight attainable. Available in either plain, painted, or hot dip galvanized finish. Flange width, and bolt and drain holes furnished to your specification. Choose from the industry's most complete line. Over 100 sizes ranging from 12" to 56" diameter—6" to 48" lengths. Immediate delivery.



REPUBLIC METAL LUMBER® provides faster, stronger, safer framing. Ideal for erecting shop-built, tailor-made storage facilities for hard-to-handle stock-and-store materials. Erection is easy. Simply measure, cut, assemble with self-locking bolt and nut fasteners. METAL LUMBER is fabricated from cold rolled steel to assure uniform physical properties, and high strength-to-gage ratio. Bonderized after fabrication for complete protection of all exposed parts. Available in two gages, two widths, in standard bundles of either 10- or 12-foot lengths, complete with fasteners. Write for more information.

STANDARD REPUBLIC MATERIAL HANDLING UNITS save time in stock, store, ship operations. Reduce storage space requirements. Standard Republic Boxes feature heavy-duty stacking brackets and corrugated construction that combine to deliver long, efficient service at low per-year cost. Four-way fork channels simplify handling in restricted space. A Republic Material Handling specialist will work with you. Call or write today.





REPUBLIC STACK 'N STORE UNITS provide a practical and economical solution to the problem of wire handling. These units are especially adaptable to bulk material, such as coiled wire, that does not require the use of completely enclosed sides. Specially designed "U" shape superstructure permits high stacking of coiled wire. Fully loaded superstructures are handled quickly and easily by crane. Or superstructures may be placed on skids and the

entire unit readily moved to store-and-ship areas by lift trucks. Republic Stack 'N Store Units save valuable floor space, eliminate cluttered aisles, reduce handling time.

If you have a material handling problem, call your Republic-Berger representative. Republic Material Handling specialists will work with you, will recommend the right standard units to do your job right. Call or write today.



REPUBLIC STEEL

*World's Widest Range
of Standard Steels and Steel Products*

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Please send more information on the following products:

- ☐ Republic Flanged Steel Traverses
☐ Republic Material Handling Units
☐ Republic Stack 'N Store Units
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1 BANTAM...with 1 operator...does all this:



- **LOADING**
- **HANDLING**
- **STOCKPIILING**
- **TRANSPORTING**

BANTAM CR-350 offers big 11-ton capacity.

In the yard or in the plant, the BANTAM CR-350 can't be beat as an industrial materials-handling machine. It's today's top-efficiency rig for faster, low-cost handling over an infinite range of jobs!

LOOK AT ALL THAT'S BANTAM-BEST!

BANTAM's compact size gives it close-quarter maneuverability that's made to order for tight spots. Hefty 11-ton capacity and independent travel, swing and hoist are just two of the money-saving, job-speeding features of this modern self-propelled that travels and works with just one man, one engine. BANTAM also gives you important features such as automotive-type power steering . . . rapid travel speeds . . . optional 4 x 4 drive for go-anywhere power (dual front wheels for high flotation also available with 4 x 4 drive) . . . separate forward-reverse clutch . . . full 360° swing . . . optional power load lowering for precision load spotting . . . foolproof, all-weather

mechanical controls . . . special gooseneck crane-boom for in-factory handling (optional).

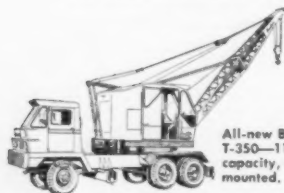
WORK AND EARN WITH 11 VERSATILE ATTACHMENTS

You can extend BANTAM's versatility with 11 BANTAM-built attachments that let you tool up to handle the widest range of jobs ever possible with a self-propelled this size. And more than 25 optional features let you equip your BANTAM the way you want it so that it can do more work more profitably for you.

See for yourself all that BANTAM can do

Find out for yourself how a BANTAM CR-350 can perform at your own yard work . . . learn how fast it gets about spot to spot, or yard to yard, as it handles the widest variety of materials at the lowest possible cost. Write *today* for literature and complete information.

See these other BANTAMS, too



All-new BANTAM T-350—11-ton capacity, carrier mounted.



All-new BANTAM C-350 crawler—capacity to eight tons.

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MH-290

251 Park Street, Waverly, Iowa
WORLD'S LARGEST PRODUCER OF TRUCK CRANE-EXCAVATORS

MATERIAL HANDLING ENGINEERING



The alternate to this is . . . DOWNTIME!

An ounce of prevention . . . can eliminate downtime in your plant. With today's highly mechanized manufacturing and distribution methods . . . downtime of materials handling equipment can mean the difference between a profit or a loss.

A Clark Dealer Continuous Maintenance Program, available from 113 Clark dealers across the continent, offers you the most effective, and economical method of reducing costly *downtime*. Here's why!

In brief, a Clark Dealer Continuous Maintenance Program offers you:

1) . . . regular maintenance on your industrial trucks on a *programmed* basis. Scheduling is conveniently set up for your particular operation. If you like, service to your equipment can be done at night or at any other time when your equipment is not in use. The additional cost for this off-shift service is a small percentage of the cost of *downtime*.

2) Clark dealers, with the aid of a national service personnel training program, assure you that the best trained mechanics in the industry will service your equipment. These highly trained specialists perform a minimum of 22 separate in-

spections on every truck serviced. They not only perform the normal jobs of greasing and oil changes, but also make all necessary adjustments to your equipment. Most important, they report the condition of your machines, anticipating failure before it happens. As a result . . . *downtime* is drastically reduced.

3) A Clark Dealer Continuous Maintenance Program gets you out of the repair and maintenance business. It eliminates the need for special tools, parts stock and use of valuable plant space for servicing facilities.

4) A Clark Dealer Continuous Maintenance Program is economical. It actually costs less than similar service on your own automobile. This is an inadequate comparison, however, when you consider the small cost of preventive type maintenance to the cost of *downtime*.

For detailed information on a Clark C.M. program call your local Clark dealer (he's listed in the Yellow pages) or write: C.M. Service, Clark Equipment Company, Battle Creek, Michigan. No obligation, of course.

CLARK[®]
EQUIPMENT

THE BYRNOVER INDUSTRIAL DOOR

It's trackless
It's fast-operating

**...it offers substantial
cost advantages**

Here's a brand new concept in industrial door design . . . and tests prove that it offers extraordinary dependability in its trouble-free operation.

At the Byrne factory, one of these doors has been opened and closed more than 40,000 times, at a speed of 120 feet per minute, without a sign of failure of any part. This, theoretically, represents the average use of an industrial door over a period of ten years.

In addition to speed of operation, the Byrnover Door offers many other advantages. It requires minimum head and jamb clearance. Because there are no interior horizontal tracks, it allows a clear unobstructed work area to within 18 inches of the door opening. It is equipped with positive safety features . . . is simple to install . . . and, of major importance, is lower in cost than comparable doors.



A new brochure describes the Byrnover Door in complete detail including all general specifications.
Write for your copy . . . today.

BYRNE doors, inc.

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MEMBER OF THE HANGAR AND
INDUSTRIAL DOOR TECHNICAL COUNCIL



Mr. Irving Bessner checks the candy on a 170-foot USS Cyclone Conveyor belt.



Mr. Henry Schuemann, Assistant General Superintendent for all plants of the Curtiss Candy Company, Chicago, Illinois.

"Our candy cools while we're making it— on **USS** Cyclone Conveyor Belts"

"We've been cooling Baby Ruth candy on USS Cyclone Conveyor Belts for 35 years," reports Mr. Henry Schuemann, Assistant General Superintendent for all plants of the Curtiss Candy Company, Chicago, Illinois. "The installation of our two conveyor units was the first step in mechanization that has enabled us to increase production 100% in 40 years.

"Over 4,000,000 Baby Ruth bars ride this conveyor system every month. The bars enter a cooling room just after the application of peanuts to a hot coating of caramel. To keep them cooling evenly, air has to circulate freely around them. The only way this can be done, without letting the candy sit overnight, is through the mesh of a metal belt.

"The Cyclone units we use consist of 14 continuously moving belts. We've been very satisfied with their performance," says Mr. Schuemann. "Some of

the individual belts in use now have lasted 5 years, and they've never given us any maintenance problems."

What about *your* plant? Is your production lagging because your materials have to be manhandled? An automatic USS Cyclone Conveyor Belt system can speed up your daily output by an amazing margin. The Cyclone line is the most complete line of metal conveyor belts offered by any belt manufacturer. Find out which one is right for your product—just send for our free booklet.

USS and Cyclone are registered trademarks

**American Steel & Wire
Division of
United States Steel**

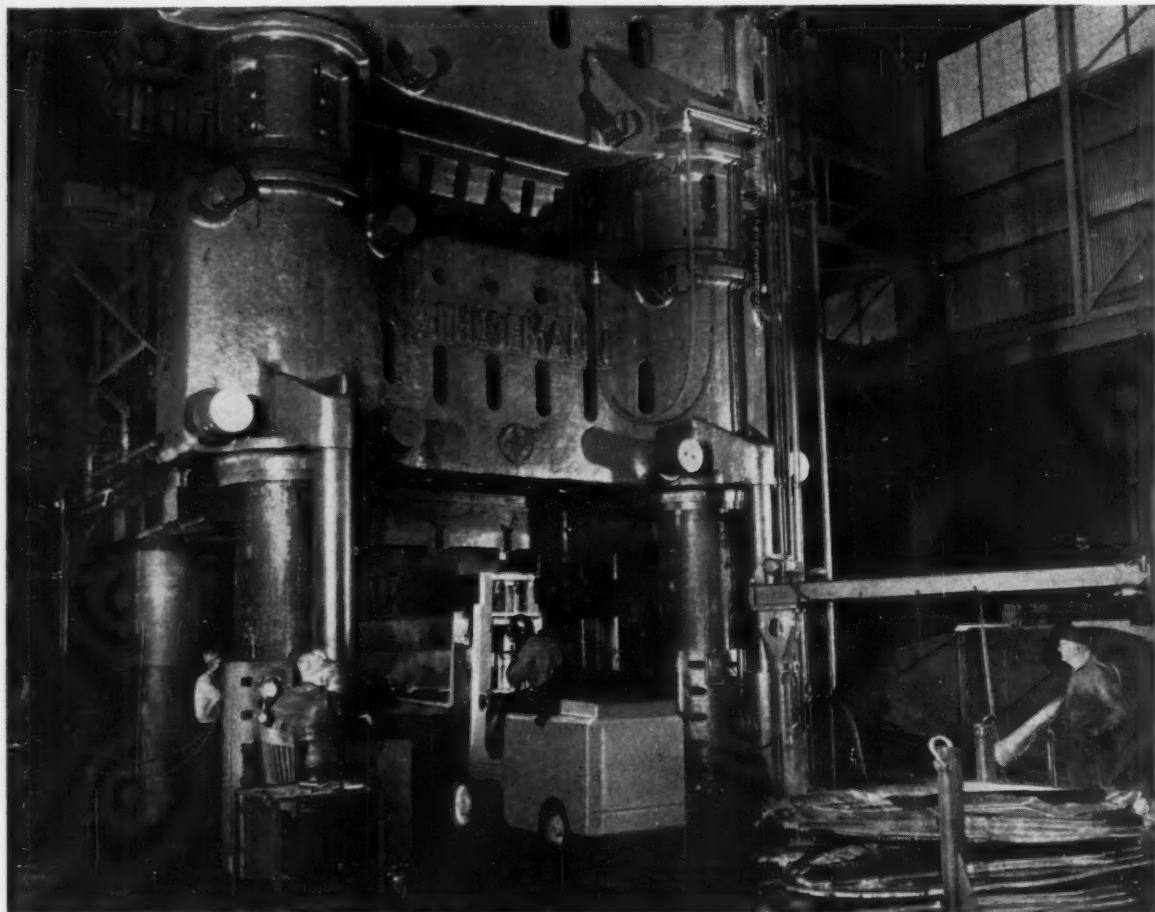


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Get full production from electric trucks— Power with C & D *Slyver-Clad*® batteries!



Records from many types of operations prove electric trucks are best for materials handling operations requiring industrial trucks. And when you power them with premium C & D *Slyver-Clad*® batteries, you get maximum capacity per unit of space. This in turn means continuous, full-production, without power letdown at the end of a shift.

In addition, C & D premium *Slyver-Clad* batteries have *Hi-Impac* cell covers and containers. This *exclusive* C & D feature alone virtually eliminates taking a truck out of service because of physical damage to the battery.

C & D batteries have Five-Fold *Slyver-Clad* insulation and retention that assures maximum life with full capacity to the end of that life, plus *AccuPak*® plates that are automatically pasted and 100% inspected by *AccuRay*®. They are the longest, thickest plates available in any industrial battery. You get built-in extra life and the *AccuRay* inspection eliminates any possibility of trouble because of low cells.

C & D premium *Slyver-Clad* batteries are available with capacities from 225 to 2175 A.H. at the six hour rate and in any standard tray arrangement. Write for Bulletin IT-528 and see why —C & D is your better battery buy.



C & D BATTERIES
of Conshohocken, Pa. ... Attica, Ind.
DIV. THE ELECTRIC AUTOLITE CO.

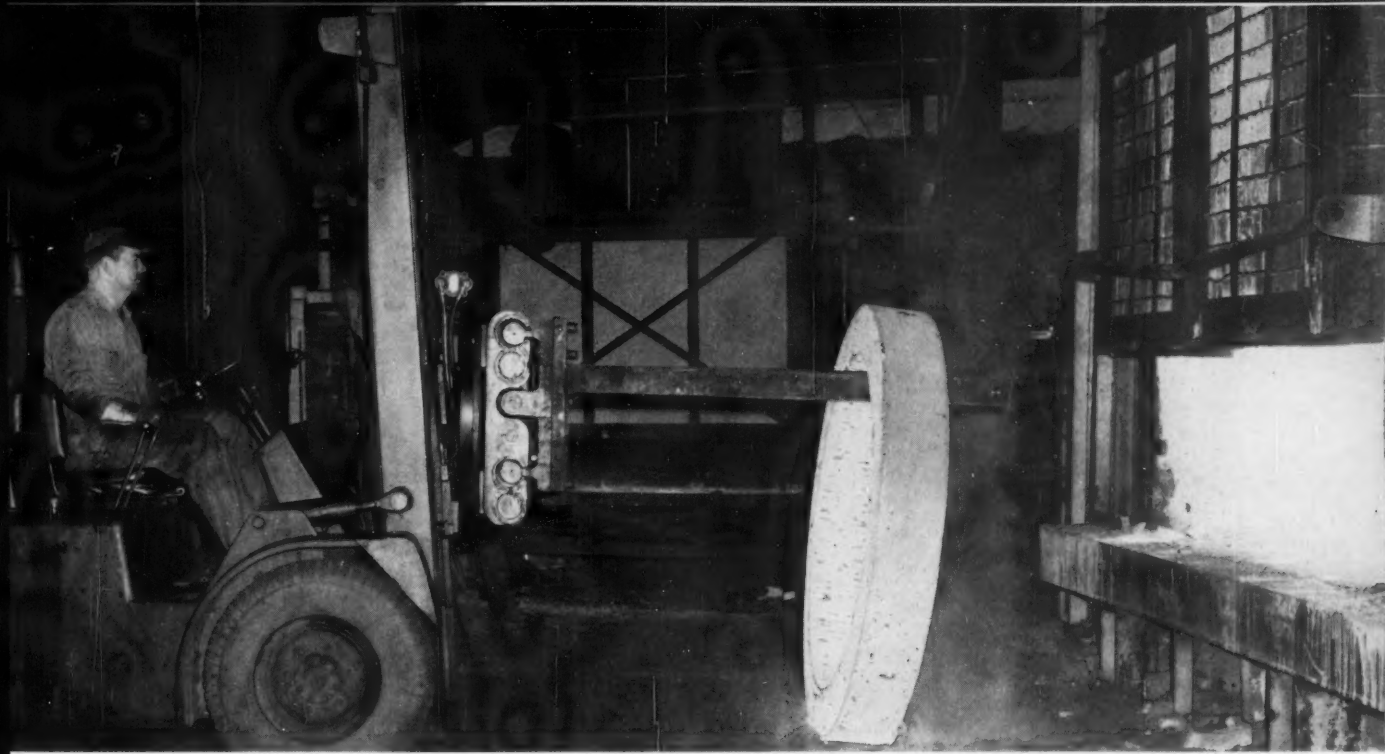
Manufacturers of *Slyver-Clad*® Industrial Batteries • *PlastiCell and *PlastiCal*® Batteries for Communications, Control, and Auxiliary Power • Producers of *AutoReg*® Silicon Chargers and *AutoCal** Charger-Battery Combinations**

*® Trademark, C & D Batteries Div. The Electric Autolite Co.

** Trademark, Industrial Nucleonics Corp., Columbus, Ohio

Circle 37 on Reader Service Card

MATERIAL HANDLING ENGINEERING



A LIFT TRUCK reduces handling costs at Carlton Forge Works, Paramount, Calif. The truck handles white hot steel as part of a day's job.

The Hyster Challenger 80 lift truck, 8,000-lb capacity, has a 360-degree revolving load grab clamp. Arms hold steel of assorted sizes and shapes and the truck carries them through the forging process. The truck has guards that protect the

pneumatic tires from the sizzling heat. They extend downward from the front fenders. Overall handling time reduction: 25 to 30 percent.

The arms of the revolving clamp go right in the furnace, place steel in the fire, and remove white-hot pieces. The clamp also holds steel in place under the press during forging. The truck handles blooms, billets, rings, disks, and tubes.

HANDLING

HOT

MATERIAL

HOT HANDLING NEEDS:

- Special protection for the operator.
- Special material for the parts of the equipment that come in contact with heat.
- Special consideration of the effect of the atmosphere. Hot material is often processed in atmosphere such as acid fumes that is hard on equipment.

BY JACK ATZINGER, Associate Editor

STANDARD EQUIPMENT will not always handle hot material. Special equipment is often needed.

A conveyor belt has to be rugged to constantly shrug off the high temperatures and corrosive atmospheres that are a part of sintering operations. Hoists are often exposed to extreme heat and oil fumes. Fork trucks, with special equipment, work in heat treating departments, carry white-hot steel as a matter of routine.

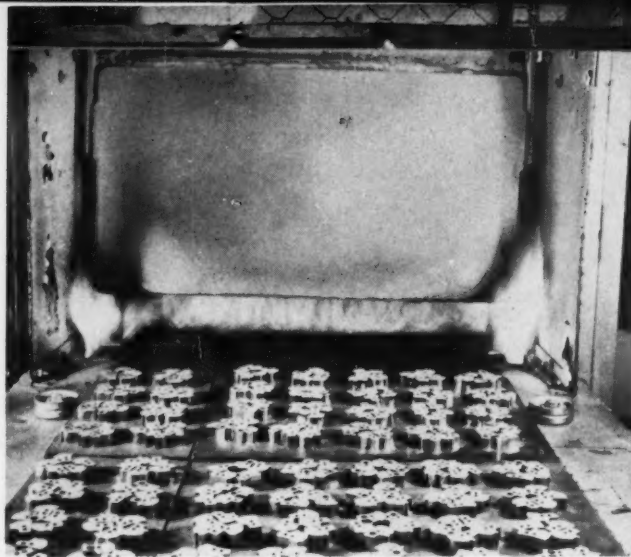
Remotely controlled machines now do the work of men in high radiation areas. The operator may be in another room or building. The machines deal easily with radioactive objects, disassembling, testing, storing them efficiently and quickly.

THE KAISER-ALUMINUM PLANT in Ravenswood, W. Va., loads a 20,000-lb Elwell-Parker electric platform truck by an overhead crane. The loads are aluminum ingots, white hot, weighing 10,000 lb. They measure 16 by 34 by 144 inches. The truck easily transports them from casting pits to the hot rolling mill.

Elwell-Parker has also furnished the metal products industry a fork truck with forks that lower loads below floor level. They're used in heat treating. They load and unload skid loads of metal from the heat treat furnaces and quench tanks. The truck holds the loads in the furnace or tank, on its forks for the required time. See photograph on cover.

METAL-MESH CONVEYOR belts are common in handling hot materials. Typical applications: heat treating, sintering of powder metal parts, annealing glassware. The belts work in temperatures as high as 2,100°F.

The Cambridge Wire Cloth Co. reports that a large manufacturer sinters parts for locks in furnaces equipped with Cambridge metal-mesh belts. One furnace has a 105-ft-long by 20-inch-wide belt. The other furnace has a 154-ft-long by 24-inch-wide belt. Both furnaces are used for infiltrating and sintering. Temperatures run up to 2,050°F



during most of the operations.

The parts are placed on carbon pallets to prevent their fusing to the belt. They are first carried through a heat chamber filled with anhydrous ammonia, then through a cooling chamber, traveling at the rate of about 1 ft in 5 minutes.

Even running round-the-clock, the all-metal belts easily resist destruction by the corrosive atmospheres and the great heat. The continuous, controlled belt movement through the furnace, assures uniform processing.



PILES OF FOUNDRY shakeout sand, hot enough to bake a cake, do no harm to heat-resistant rubber conveyor belts reinforced with glass fabric.

At Texas Foundries, Inc., Lufkin, Texas, a B. F. Goodrich Solarflex belt carries sand that usually runs between 350° and 500°F. The belt, however, never gets hotter than 400°. The foundry reports that the belt has already outlasted 7 of the belts they used to use, and that it looks good for another 2 years. They estimate a \$3,500 savings in belt replacement so far. The Solarflex belt is 25 ft long, 24 inches wide. It travels 80 feet a minute, carries 20 tons an hour of hot shakeout sand.

SHOWN PUBLICLY for the first time in June at the New England MHI Show was The Hettrick Manufacturing Company's new Super-Hotop conveyor belting. It is made specifically to handle material at temperatures up to 1,100°F.

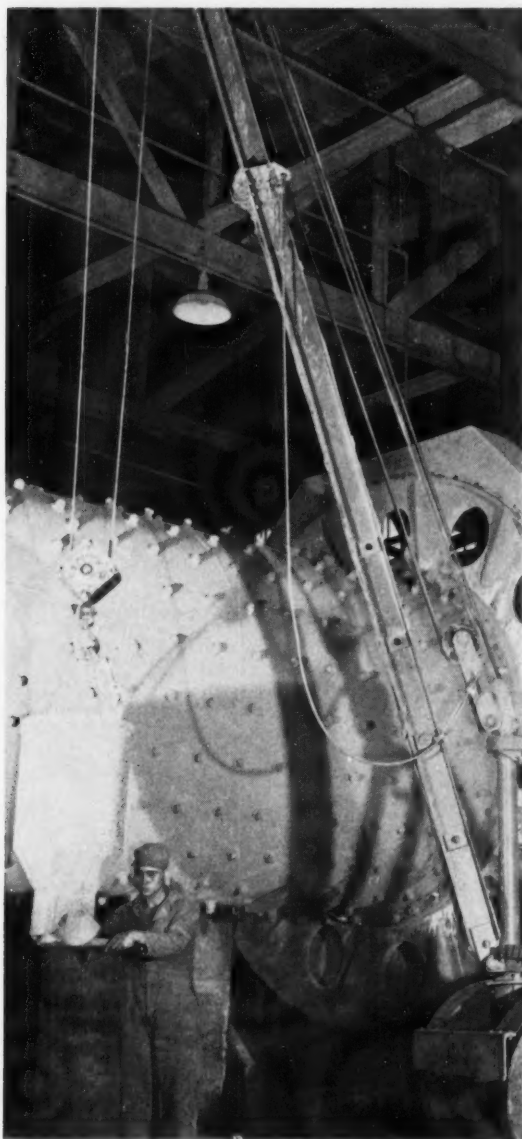
The new belting is made of from 7 to 12 plies of specially treated asbestos and cotton, heavily stitched with heat-resistant twine. It's double stitched along the edges to prevent curling. The service side is coated with a Hettrick heat-resistant compound. The company says it has thoroughly plant tested the belt. The belt promises to open an entirely new field in the reduction of plant overhead and operating expense.



A MIDWEST FOUNDRY that makes small castings at high speeds was dissatisfied with the inefficiency of its old fashioned chain blocks on its pouring ladle. It took a lot of pulling to lift the load, and the external load brake, collecting dirt and grit, occasionally locked up.

The foundry installed a Manning, Maxwell & Moore 1-ton Budgit Aluminum Chain Block. Its totally enclosed design eliminated load brake trouble immediately. Maintenance and down time was cut. Equa-torque gearing greatly reduced the effort needed to raise or lower the ladle. Yet control was so accurate, the ladle could be inched into position quickly.

The chain block is the proper tool to handle the job when the temperature is high, when dirt and grit are dense, and when there is neither air nor electricity to power heavy duty hoists.



IN SERVICE at the Aluminum Company of America, East St. Louis, Ill. is a Silent Hoist Krane Kar Mobile Swing Boom Crane.

It works inside the sinter plant. It's suitable for this work because the power swing boom and power load line hoisting permit operation in tight quarters. The operator can lift, lower, swing the load to the left or right, or precisely spot the load all without moving the vehicle itself.

The operator and the machine are both insulated from the heat by the length of the boom and cable.



GARDNER-DENVER reports that its air hoists are especially suitable for handling material in explosive atmosphere because its hoists have a high degree of built-in safety. The hoists are nonsparking, cannot stall or burnout due to an overload. The dust and powders of foundries do not affect their operation. They resist extreme temperatures and corrosive agents. A pendant control enables the operator to move loads while standing at considerable distance from the work area. Hoists are available for lifting loads from 150 lb to 2 tons.

Typical applications: for heat treat departments, lowering loads into pit-type heat treating ovens; dipping parts for air conditioner condensers in an acid bath; cleaning parts for chrome plating by washing in boiling acid and caustic solutions; power moving of baskets from one tank to another.

HEWITT-ROBINS, INC., makes a line of vibrating machines to screen and move hot sinter as it comes off the line in steel mills.

The decks of the machines and the other members exposed to the abrasion of the sinter, are made of special steels. High temperature alloys are also used for important fasteners, structural and support components. The vibrator, the lubricant, and critical structural members are insulated from heat.

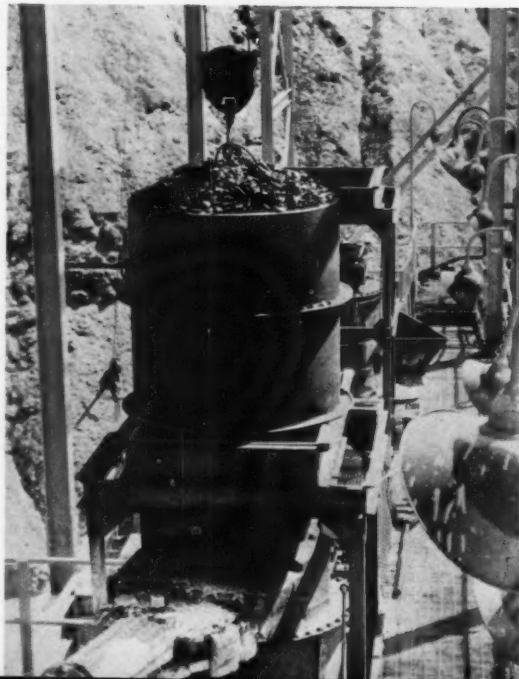
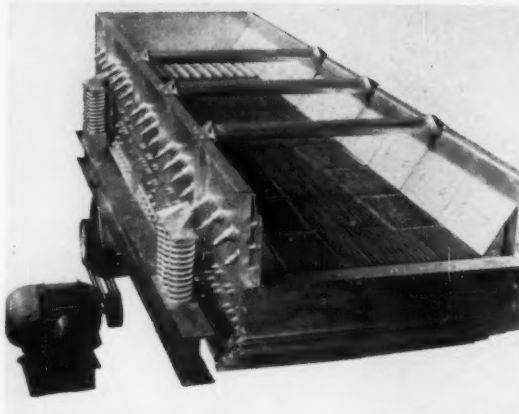
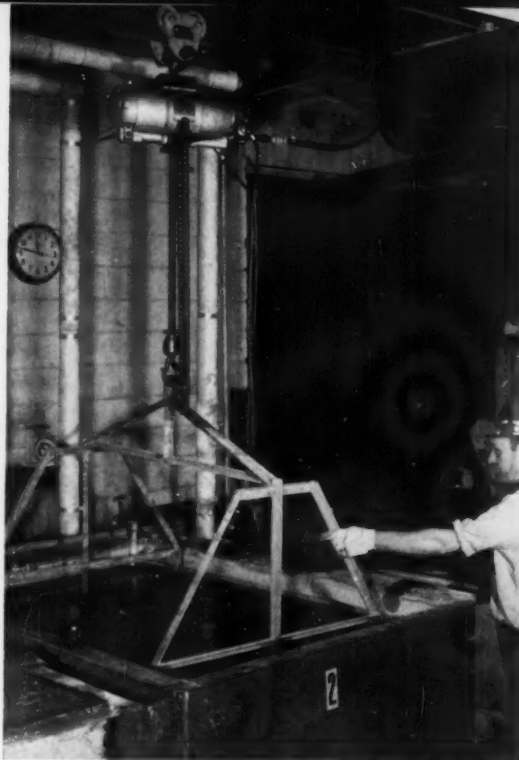
The vibrators are working in sintering plants of U.S. Steel Corp., Armco Steel Corp., Weirton Steel Co., Great Lakes Steel Co., Jones and Laughlin Steel Co., and Granite City Steel Co.

The machines are installed immediately after the crusher. The crusher breaks sinter slab into lumps and discharges it into the coolers. Sections of the decks are equipped with grid bars with openings in the $\frac{1}{4}$ -inch to $\frac{3}{8}$ -inch range. Sinter lumps suitable in size for blast furnace feed move over the top of the grid bars to the coolers. Pieces too small for the blast furnaces fall through the grid and are carried back to the head of the sintering machine to be recycled and combined with the makeup of sinter mix.

HOT METAL CARRIERS are a specialty of The Loudon Machinery Company. Its monorails and cranes get metal to the floor hotter, quicker, and in larger quantities than hand-pour systems.

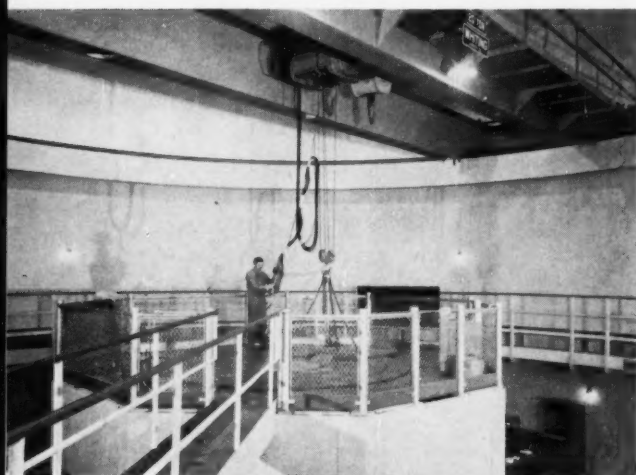
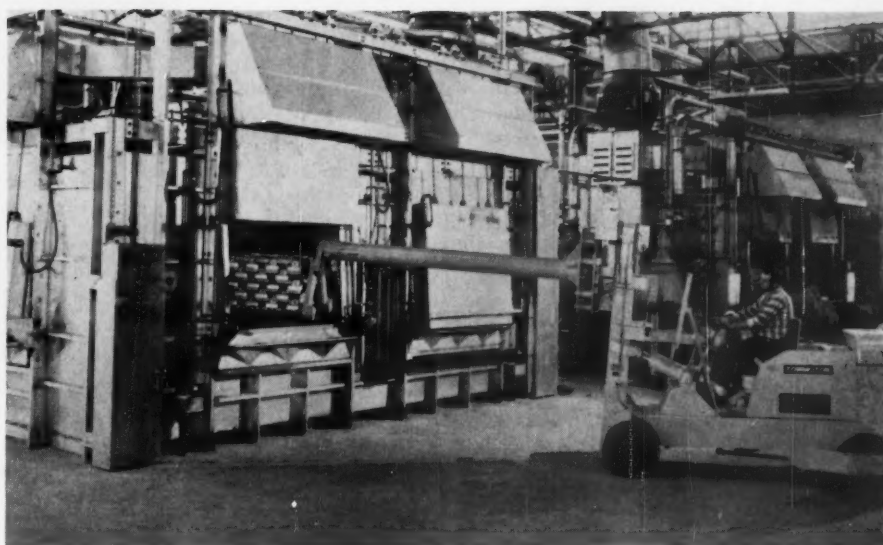
The Chemical Industry handles solids and liquids safely and quickly with hoppers, corrosion resisting containers, and buckets. Monorails free workmen from the hazards of toxic fumes. The equipment operates smoothly regardless of fumes or weather.

Typical application: a furnace charging system. A charcoal bucket automatically positions over the furnace selected by the dispatcher. The bucket lowers into the furnace mouth, the bottom trips, and the load discharges. Automatic furnace charging completely avoids the hazard of toxic fumes to the attendant. Once four men used to shovel charcoal directly into the furnaces.



A LIFT TRUCK was developed by Towmotor engineers for the Miro Aluminum Company's new rolling mill in Manitowoc, Wis. The truck has heat shields that protect the driver and tires. The Towmotor Model 900 has a specially designed front-end mechanism for charging pigs and scrap aluminum into the melting furnace.

The truck can place metal anywhere in the furnace with minimum loss of heat through opened doors. The truck has a hydraulically operated ram fitted with forks which separate to release pigs into the furnace. Baskets also fit on these forks, unload the scrap when the operator rotates the mechanism.



SERVICING the first atomic-powered generating station in the world is a circular overhead crane with a 20-ton capacity and a 76 foot span. It's made by Whiting Corp.

Circular overhead cranes, though they look like ordinary cranes, have circular runways. They actually pivot about an axis rather than travel in a straight line.

Main job of this crane is removing radioactive material from the reactor building and placing new fuel rods in the reactor. In another building there is another 20-ton circular crane with a span of 68 feet, 2 inches. It also services a reactor.



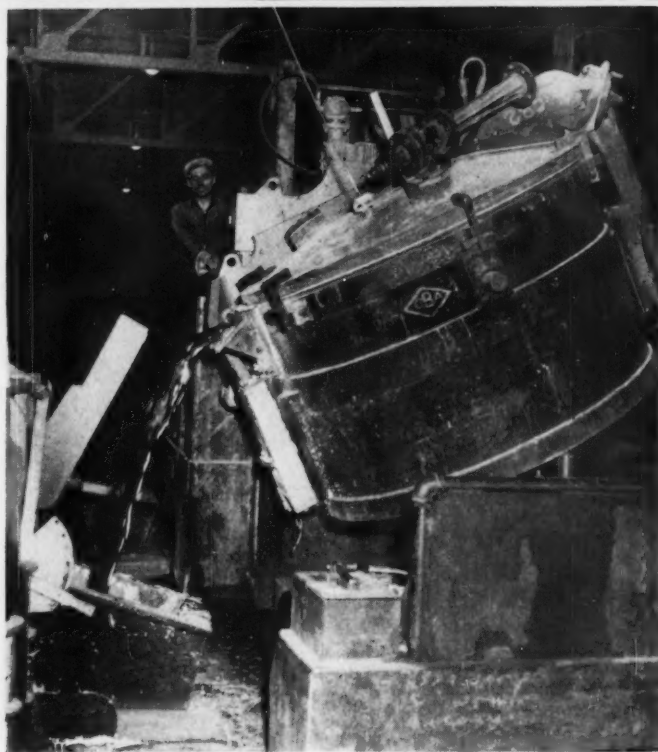
AT THE THOMAS A. EDISON INDUSTRIES, Silver Lake, N.Y., Raymond electric reach-fork-trucks transport 2,000-lb pots of ferric oxide. They carry them to furnaces. After processing, the trucks remove the pots from the furnace and take them to cooling racks.

With the forks retracted, the trucks easily make right angle turns in the 8-ft-wide aisle. In front of the furnace, the forks extend to deposit or pick up the pots. A shield on the fork carriage protects the operator from the heat.

This method is far superior to the old. Now there is no need to cool and reheat the furnaces. They're kept in constant use. Movement is fast, and the operator is safer because he's exposed less to furnace heat. By raising the racks, additional pots can be stood on the floor, nearly doubling the space available for cooling. The time to deposit or pick up a pot from the furnace is now so brief that a safety glass wing on the right of the shield for the operator to look through was found unnecessary.

RED HOT STEEL NUBBINS can be collected in Union Metal Manufacturing Company Work-O-Matic boxes. These drop bottom boxes are good for material movement, storage, work-level positioning, and automatic controlled dumping.

The lift-truck operator has complete control throughout the dumping cycle. The discharge point remains constant at the selected fork height. This permits accurate dumping with complete control of spillage. No need to do any unloading by hand.



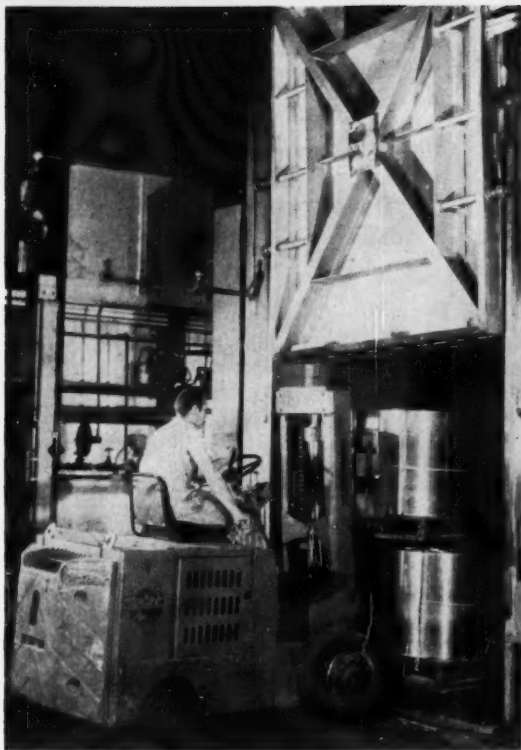
A YALE KH-33 Ladle Handling truck is used by Canadian-British Aluminum Company, Quebec, to transport molten metal.

The truck is equipped with side shifter, rotator, power steering, and hydraulic brakes. Dual controls assure good visibility for the operator. Rotation is 360 degrees in either direction. The side shifter permits movement of up to 14 inches to the right or left of center.



THREE IMPORTANT JOBS are done by a Frank G. Hough Co. Payloader H-90 at an Illinois Foundry.

- Most important, it keeps the foundry supplied with sand.
- Next, it works at the cupola drop. Here, an overhead crane drops wastes from furnaces. Some are 1½ ton bubbles, residue from slag pots. They're loaded along with iron slag and other residue and hauled to a dump.
- Third job is at the dump behind the factory. Here, it keeps level stockpiles of refuse and residue. The H-90 is able to handle two of the slag pots. The pots are liquid in the center, and are extremely hot.

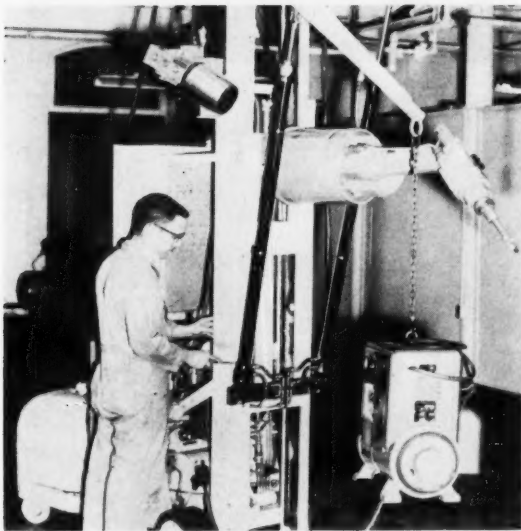


HIGH-STRENGTH, ALLOY STEEL pallets withstand weights of 12,000 lb during 12-hour annealing cycles at 960°F at Anaconda Aluminum Company. The pallets do not warp or deform during the work.

Two years was the life of the old pallets. The 750 new alloy steel pallets show no signs of warping in that time. They are expected to last 10 years.

The pallets were designed and built by the Berger Division of Republic Steel Corp. The steel has a minimum yield point of 50,000 psi and a minimum tensile strength of 70,000 psi. The strength comes from a combination of the alloy and heat-treating method. The pallets measure 36 by 72 inches. They are corrugated and formed in a lattice-work pattern to allow circulation of air during annealing. Reinforcing stringers are corrugated and placed to distribute the weight of the coils. Either 2- or 4-way entry is possible.

Uneven pallet surfaces used to damage the edges of the coils of foil. There's none of it with these new pallets. Handling is reduced, because the coils may be kept on the same pallets from receiving through weighing, cold hard storage, annealing, post-annealing storage.

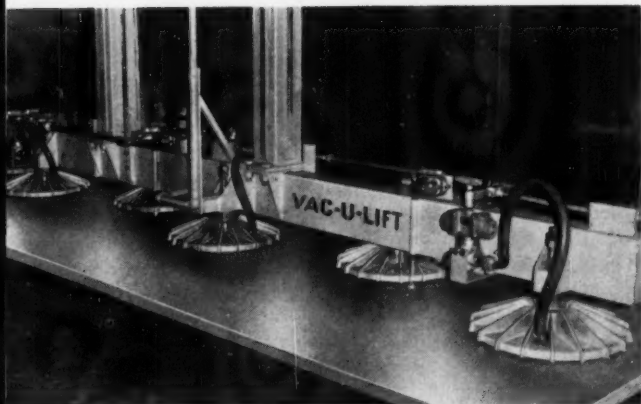


ROBOTS with the ability to lift a half ton of dead weight or repair delicate machinery are being developed by nuclear and research specialists of the Babcock & Wilcox Company to do maintenance and repair work in radioactive areas. The automations were developed for use with a new type reactor for the U.S. Atomic Energy Commission.

Forming the basic components of the robots are a Barrett Model TTF Hi-Lift truck and a Barrett Radox Radio-Remote controlled tractor, made by Barrett-Cravens Co.

The largest robot is the 3-ton, 8-feet tall Model TTF Hi-Lift truck. Mounted on its mast is a TV camera. It provides a clear view of the work it is performing.

The tractor is used for towing trailer loads of radioactive materials. By means of radio waves emitted from a simple control box operated at a distance, the Radox Tractor starts, stops, reverses travel direction. The person operating it is safe behind a protective wall.



VAC-U-LIFT COMPANY has just completed a new vacuum overhead handler for hot aluminum liners. It has a 15' pad beam. It transfers hot aluminum liners from a moving conveyor to a stack.

The operation takes 18 seconds. Hot liners, 16' x 6' x 3" are at 700°F. Pyro Pads pick them up. The pads have seal rings that will withstand the heat.

Vac-U-Lift systems can handle materials weighing from a few ounces to several tons. They're used extensively in handling steel plate, tanks, concrete, structural steel, and glass.

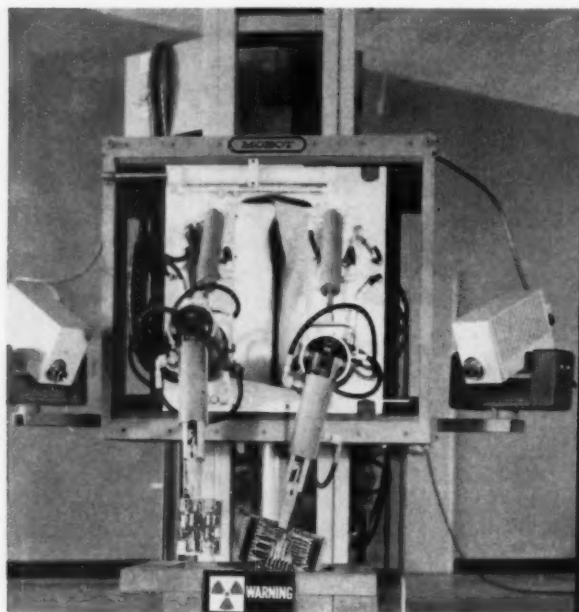


AN ENGINEERED DUMPER made by Uhrden, Inc. is used at the Hanford Atomic Products Operation, at Richland, Wash. The Tubar Dumper empties containers of dry chemical salt into tanks.

Irradiated fuel elements from the atomic reactors at the Hanford plant are dissolved and chemically processed in the separation facility to separate Hanford's primary product, plutonium, from unused uranium and fission by-products.

CULLET produced at the Technical Center of Owens-Illinois Glass Company, Toledo, Ohio, is collected in self-dumping Roura hoppers. They are located in a pit below the furnaces and forming machines.

Two hoppers are stationed under each of eight chutes leading from the production floor. When one hopper is full, the chute is directed into the other while the full hopper is emptied. Water directed down the chute cools the molten glass.



HUGHES AIRCRAFT COMPANY has built a Mobot for the Sandia Corporation, direct contractor to the Atomic Energy Commission. It weighs 4,500 lb. and acts like something of science-fiction.

It carries 200 feet of cable. It will help test radiation effects on materials in places too dangerous for men. An operator with no direct view of the Mobot can give it over 100 commands, view the Mobot's actions through Mobot's TV-camera eyes.



The Mobot can pick up and use tools such as wrenches, screwdrivers, hammers, and shears for dismantling the radioactive material.

The first model is the beginning of a family of machines similar to Mobot. They'll go from several hundred pounds to 20 tons or more. Future models will have arms that reach over 50 feet. The Mobot Mark I is an indoor model, but outdoor models can be made easily.



ORDER FILLING aisle between racks. High weight-to-volume cases go on floor pallets. Dishes of same pattern to complete sets are in adjacent rack frontage. Cases are loaded at manufacturing.



DINNERWARE on roller racks doubles warehouse volume in same area. Three levels allow easy access to pieces in cases. Order picking aisles run between two racks loaded from opposite ends.

Modular Warehousing Packs Dishes In Cube

Analysis of time-worn manual handling methods points way to savings.

A WEST COAST dinnerware maker stacks the dishes with a fork truck—then stores them on 2 miles of roller rack. Orders are filled right off the racks.

Results are impressive: The industry traditionally used manual handling.

Gladding, McBean & Co. installed the bulk-unit handling system at their Los Angeles warehouse. The old bin storage outgrew its space. Waste of cube was great—cups and pitchers don't stack well. And it takes lots of walking and climbing to get them in and out of 3-high bins when you stack by hand.

The need: Twice the volume in the same area.

The company called in W. B. Semco & Associates, industrial consultants. Semco scanned such vital statistics as quantity, size, weight, volume of each item—2,000 of them in five separate lines.

The cure: To determine the fewest sizes for cases or boxes in which to handle and store china compactly. A case of china would be a bulk unit for money saving order-picking efficiencies.

The consultant analyzed the average load cycle for each item. Load cycle is an arbitrary term that varies with application. It is the inventory of a single item available to the order pickers at any time. In this study 1/24th annual volume was chosen.

The length of time stock stays on the shelf varies with sales activity, which is seasonal. Each item must be reloaded on its shelf 24 times yearly.

Then the cubic module per load cycle was calculated. Example: A load cycle for a certain dinnerplate is 326 plates. Measurement showed 12 cases, each 12 x 12 x 16 inches, hold 326 plates. Volume of the 12 boxes is $12 \times 1 \times 1 \times 1\frac{1}{2} = 16$ cu ft. The cubic module, then, is 16 cu ft.

Cubic module figures tell whether cases should be stored on the racks or in full pallets on the floor.

It works this way: Arbitrarily, a cubic module of 4 or less goes on ordinary shelving; 5 to 20 cu ft occupies one single position in the racks. Items over 20 cu ft, best handled in load lots, become full pallet position items. The dinnerplates require a 16 ft module, are loaded into one of the 20 cu ft racks.

Finally, ratio of weight to cubic module for each piece was figured. Big pitchers are tight for their volume; butter dishes stack tight, have a high ratio.

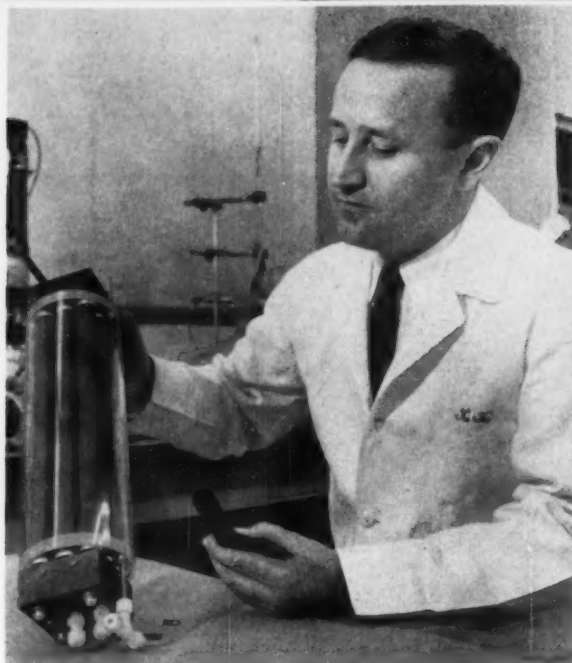
These statistics showed 3 case sizes would hold all dinnerware. Two of them have a common side measurement to fit roller racks for best order picking efficiency. All sizes stack in stable patterns on standard pallets.

Cases are loaded at manufacturing, go to warehouse on pallets by fork truck. Hand trucks are used to refill roller racks directly from pallets. Reserve storage is in perimeter areas on the floor.

You walk only 16 inches on the average to pick an item. It once was 4 feet. ♦ ♦

MHE Power Series— No. 5

The question about fuel cells is not whether they'll work but when they'll be ready for use. They're very close now. This article continues the series on power for material handling equipment. The next article will discuss the gasoline engine.



THIS FUEL CELL UNIT has nine hollow porous carbon electrodes grouped in a round plastic housing. Holding it is Dr. Karl Kordes who performed basic fuel cell research at Union Carbide Corp.'s laboratory.

Fuel Cells—Almost Here

BY DICK DIETZ
Associate Editor

FUEL CELLS will be powering fork trucks in less than two years. That's what L. E. Wells, vice president of engineering at Exide, recently told a Cleveland audience. This doesn't mean fuel cells will be in general use by that time. But, said Wells, they will be advanced enough for special industrial use.

The more conservative predict military use of fuel cells in about three years and industrial use in five years.

Any way you look at it, the last lap is being run. And it may make a great difference to you as a material handling engineer.

What's the Furor?

Excitement is mounting as dozens of companies close in on the goal of a practical fuel cell. There's nothing new about the idea. Someone's been trying to develop fuel cells off and on since the idea was advanced 150 years ago. But only recently have they been able to make the idea work.

A fuel cell converts chemical energy into electrical energy without engines and electrical generators. It works opposite to the storage battery which splits the electrolyte into particles. Instead, the basic fuel cell combines hydrogen and oxygen to form water, releasing electrons which flow as

electricity. You release more energy when forming water than when decomposing it.

What's It Good For?

Dr. Karl Kordes of Union Carbide Corp. puts it like this:

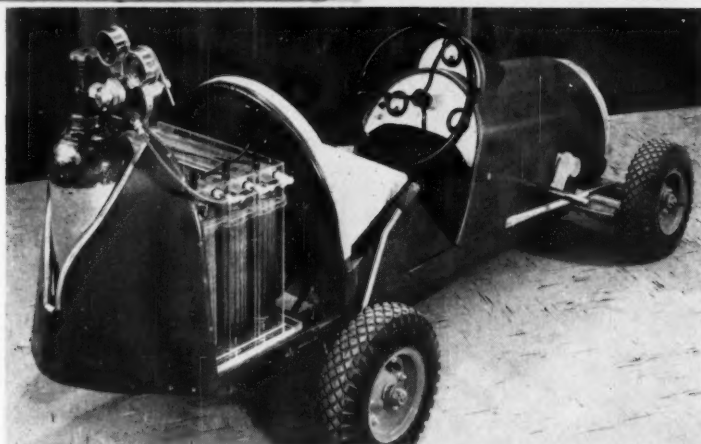
"There is no advantage in using fuel cells where high power output per unit weight is required for only a short time. For this, high rate primary batteries are certainly superior. Also, there is no indication that fuel cell power will compete with network power, at least in the near future.

"However, the picture changes if you want, for instance, a 100-watt power source where you can't use a motor-generator because of interference, noise, fumes, etc. A 50-lb conventional storage battery can supply this power for 10 hours. Over a month, this means 72 battery exchanges, or moving 3,400 lb.

"A hydrogen-air fuel cell delivering 100 watts should weigh about 50 lb. This includes a hydrogen generator. From less than 0.6 lb of lithium hydride (source of hydrogen), you can produce 100 watts for 10 hours. Total fuel weight for the month then comes to only 43 lb."

Some Early Applications

► The Hydrox fuel cell powered a 4,000-lb-capacity fork lift truck in England.

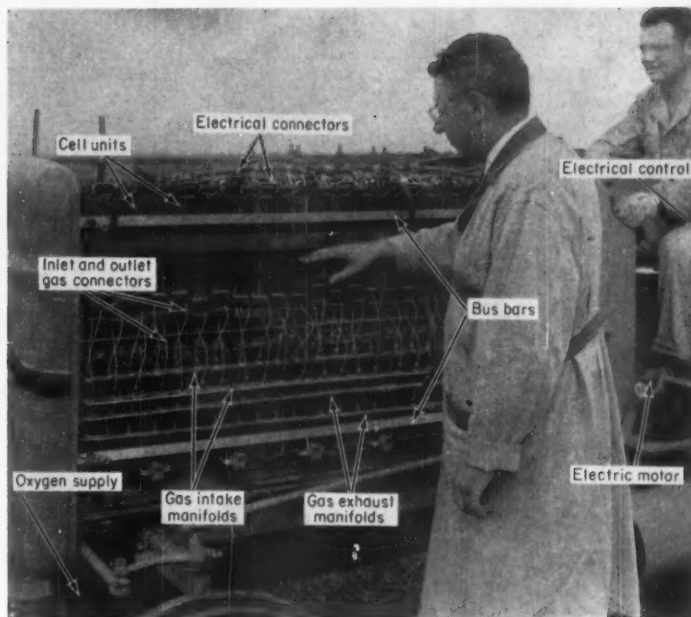


A ZINC-OXYGEN cell powers this small racer, has run for a day and a half before recharging. Tank at the rear holds oxygen which flows at low pressure into the cell where the zinc fuel in an electrode is oxidized. The cell's electrolyte is potassium hydroxide.

Fuel Cells In Action



A HYDROX fuel cell easily provides electricity to drive a lift truck in Cambridge, England. The cell, 30" x 15" x 12", produced 5 KW, about 7 hp. But control units for this cell are quite bulky.



► Allis-Chalmers ran a 5,270-lb tractor with 1,008 fuel cells packed into the engine space. Drawbar pull measured 3,000 lb.

► Exide powered a small racing car with a fuel cell. The firm also has signed agreements with 12 fork truck makers to help with applications and design. See Handling 'Round the Country, Pg. 22.

► National Carbon Co. developed fuel cells, which have been running Army portable radar sets for more than a year.

Other companies have fuel cells undergoing rigorous tests in their laboratories. The day of reckoning is fast approaching.

A Peek Farther Ahead

Fuel cells may be fine for automobiles. They have all the advantages and few, if any, of the disadvantages of batteries in the old electric cars. Fuel cells take large overloads without damage. And lack of moving parts makes them silent and vibration-free.

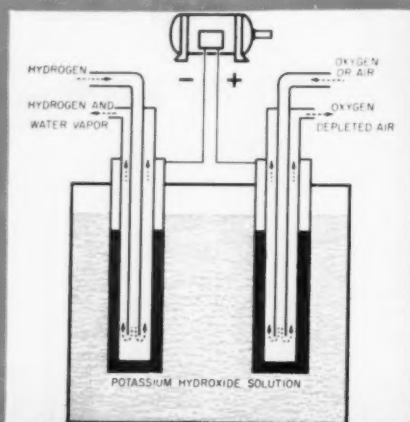
Applied to stationary power, fuel cells could use off-peak power. Excess energy could break water into hydrogen and oxygen, which would be stored until needed again for fuel cells.

Atomic reactors used to create power could

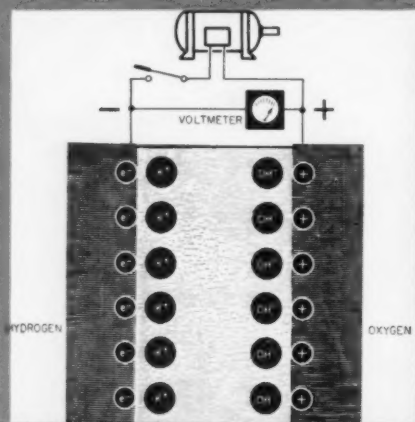


FIFTEEN KW from a fuel cell gives this tractor 3,000 lb of drawbar pull. There are 1,008 individual cells. Researcher T. G. Kirkland points to a 9-cell unit. Electricity generates from a mixture of fuel gases, largely propane, and oxygen in an electrolyte. Direct current flows through the bus bars to a controller which regulates speed and direction. The controller (left) is noteworthy for its small size. It controls the amount of current to the 20-hp motor. Also, the reversing lever changes the polarity of the current reaching the motor, to change direction.

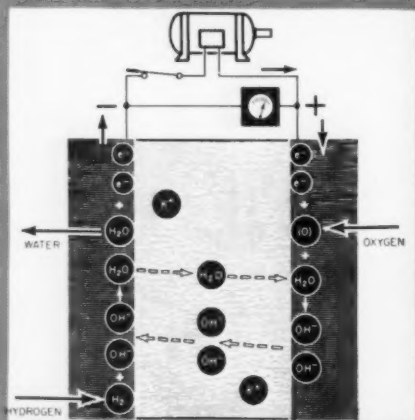
The Fuel Cell



SIMPLEST FUEL CELL uses hydrogen, oxygen and potassium hydroxide to produce direct current. Two porous electrodes contain catalysts which aid the reactions. The gases, H_2 and O_2 , form water and liberate the electrons.



THIS CIRCUIT is open. Therefore the hydrogen electrode accumulates negative charges which attract plus-charged potassium ions from the electrolyte. The oxygen attracts the hydroxyl ions. This stops reaction, flow of current.



CLOSING THE CIRCUIT starts the reaction and flow of current. Follow the diagram clockwise from upper right. The hydroxyl ions migrate to the negative electrode to form water, giving up electrons which flow through outer circuit.

be kept on the job during off-peak hours to produce gas for fuel cells. Reactors work more efficiently at full capacity.

Why Are Fuel Cells Good?

Above all, fuel cells are efficient. Test models run at 60% to 80% efficiency. Developers predict efficiencies near 100 percent. The best gas turbines are 40% efficient. Internal combustion engines reach 30% at peak. Good diesel engines may reach 35%.

All these systems oxidize something. The big difference is how. Turbines and engines produce heat and friction along with power. Heat and friction are lost energy. Fuel cells, on the other hand, control the heat, wind up with more useful energy.

More Fuel Cell Advantages

- **Light.** One type delivers 250 watt hours per pound, compared with 10 to 12 watt hours per pound for lead-acid batteries.

- **Minimum maintenance.** There are no moving parts.

- **Flexible.** They can be used singly or in series to produce a great range of power.

- **Refuel or recharge quickly.** Some of them go back into operation in the time it takes to fill a gas tank.

- **No noise.** Only the hum of the electric motor they power disturbs the golden silence.

- **No smoke.** Fuel cells can power vehicles that work in unventilated space.

- **No unpleasant wastes.** The byproducts range from water to chemical compounds which often can be sold to defray some of the costs of the fuels. Some cells can recharge, producing no byproducts.

- **Withstand vibration and climate extremes.**

A Little History

The English got the ball rolling. Sir Humphrey Davy first mentioned fuel cells in 1801, devised one using carbon and nitric acid. Sir William Grove built a chemical battery in 1839, using the water-forming reaction of hydrogen and oxygen. Fifty years later, Ludwig Mond and Carl Langer set up a similar cell which became the basis of present day work. They obtained 6 amperes per square foot of electrode, using an acid electrolyte and platinum electrodes.

Attempts to make a practical cell continued, using hydrogen, carbon monoxide, acetylene, and hydrocarbons. Around 1900, the first high temperature cell was tried.

The dramatic spurt came with a contemporary, Francis T. Bacon of England, and his Hydrox cell.

It's a high temperature-high pressure cell, producing current densities up to 1,000 amperes per square foot. Another Englishman, Dr. H. H. Chambers, developed the Carbox cell, a high temperature type with a fused carbonate electrolyte. Both of these are being further developed in the United States by Leeson Corp. of Rhode Island.

Research and development in this country is going on at a furious pace among other firms. They include Exide Industrial Division, The Electric Storage Battery Co.; Allis-Chalmers; National Carbon Co. of Union Carbide Corp.; General Electric; Pittsburgh Consolidated Coal and Coke Co., and others. Research and development also is going on in Germany, The Netherlands, England, and,

presumably, Russia. A Russian, O. K. Davydan, obtained current densities of 18.5 amperes per square foot from a high temperature cell, but there have been no further reports since 1946.

Classifying Cells

You can divide fuel cells into groups. Some operate around atmospheric pressure and low temperatures (150°F). Others need pressures up to 800 psi and temperatures of 400° to 500°F. Still others operate at 1,200°F.

You also can classify fuel cells by fuel type. There's the direct cell (using solid fuel), semidirect cell (using gaseous fuel), and indirect cell (oxidation-reduction). ♦ ♦

WHAT KINDS OF FUEL CELLS?

Zinc-Oxygen Cell

One electrode holds finely-divided zinc and the other is fed compressed oxygen. Zinc is fed by batch or continuously. Exide developed a special metal electrode, claimed superior at moderate temperatures and pressures. The electrolyte is sodium hydroxide.

The system generates zinc oxide which can be sold after it's removed. Or the zinc can be de-oxidized and fed back for reuse. This type recharges like a storage battery.

Fuel Gas Cell

A mixture of fuel gases, largely propane, is adsorbed by the catalyst on the anode. It reacts with the electrolyte, generating electricity. Oxygen at the cathode reacts with an electron from the external circuit, reforming the ion used up at the anode. The byproducts are water and carbon dioxide.

To get 15 KW, Allis-Chalmers used 1,008 fuel cells, each ¼-inch thick and 12 inches square. This powered a standard 20-hp d.c. motor in a 5,270-lb tractor.

Carbon Cell

It has chemically-treated, hollow, porous carbon electrodes, works at environmental temperatures and pressures. The cell uses hydrogen and oxygen, but can replace the oxygen with air. Evaporation gets rid of the water byproduct.

This cell is most efficient at normal usage, when no attempt is made to draw maximum power from minimum volume. The best design, according to National Carbon Co., produces about 1 KW from a unit of 1 cu ft. The cell is most desirable for high current, low voltage use. Increased pressure in the cell will increase electrical output.

Hydrox Cell

Hydrogen is released to one electrode and oxygen to the other. Potassium hydroxide is the electrolyte. Water is the byproduct. It operates at 800 psi and

400° to 500°F.

The hydrogen electrode is nickel-plated steel with holes drilled through it. The oxygen electrode is impregnated with lithium. Forty electrodes, each 1/16-inch thick and 10 inches in diameter, go into a case which is clamped to withstand the pressure. This system needs large and bulky controls, but it successfully ran a lift truck.

Carbox Cell

The fuel is carbonaceous, such as natural gas, kerosene, vaporized gasoline, or coal gases. Since the cells work at around 1,200°F, the electrolyte is a molten salt usually carbonates of sodium, potassium, and lithium. The fuel reacts with steam and carbon dioxide to produce hydrogen and carbon monoxide. These react with carbonate ions to form carbon dioxide and water, giving up electrons. At the positive electrode, oxygen or air takes up the electrons and reacts with carbon dioxide to produce the carbonate ions.

Sodium Amalgam Cell

Sodium dissolves in mercury to form an amalgam which reacts with oxygen from the other electrode. Water is the electrolyte. This yields sodium hydroxide. Less than 2 lb of sodium produces 1,000 ampere hours per cell. This fuel cell is capable of long term operation.

Redox Cell

Fuel and oxygen react with other chemicals rather than with each other as in the foregoing systems. Chemical intermediates generate current in the cell.

One type uses tin salts and bromine. Hydrogen adds electrons to tin ions which give up electrons to the electrode and return to react with more hydrogen. The oxygen similarly takes electrons from bromide ions, converting them to bromine which takes up electrons from the other electrode. General Electric is developing a similar system with titanium salts.



PACKAGES from the loading dock, brought up by push-bar conveyor, run along the top of the pipe slide. An arm diverts the packages to the proper checking station. The packages are opened, checked, and the merchandise goes into the carrier on the left.



DISPOSAL BELT above the checking stations gets rid of wrapping from the packages. Belt is emptied 2 or 3 times a day.



DIVERTING ARM sends packages down pipe slide to the right station. The dispatcher presses a button to work the arm.

Automatic Conveyors Crack Retail Handling Jams

MOUNTAINS OF GOODS during peak seasons give most department stores fits. But Famous-Barr of St. Louis breathes easily nowadays. It moves goods automatically with Alvey conveyors and Columbus-McKinnon Power-Flex conveyors and Lifetracks.

Famous-Barr covers a full block. Handling stock was difficult because the store is separated by a street from two service buildings and a receiving

dock. Workers used to push goods from the loading dock onto elevators, drop to tunnel level, load on stock carts, push carts through the tunnel, load into another elevator, lift to the stockroom, and shelve goods—all by hand.

Traffic snarls were fiercest in the tunnel and between the floors of the service building. During peak seasons, such as Christmas, the inefficiency, confusion, hustle and bustle made the going nearly unbearable.

The Answer: Conveyors

Famous-Barr installed conveyors at the loading dock, through the tunnel, in the store building. Hand carts were replaced by 150 carriers (boxes), hung from an overhead track and electronically-controlled. The carriers are 4 ft long, 40 inches high, 30 inches deep, and carry up to 300 lb. Normally, 30 to 40 carriers run along the track each hour. Power chain moves them at 30 fpm.

This system serves the basement and first floor of the main building. Hand carts and freight elevators still supply the upper floors.

At the Loading Dock

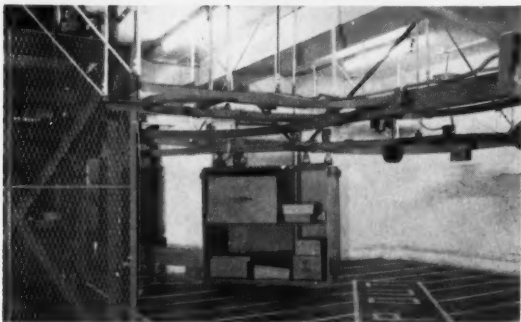
Unloaders put incoming goods on a flat roller conveyor from any point on the dock. Packages slated for the second floor of the service building



THE AUTOMATIC system starts right at the loading dock where packages go on a roller-bar conveyor. This eliminates the heavy lifting. Push-bar conveyor lifts to service building's 2nd floor.



CARRIERS first ride their rails to the marking room (above) where retail price tags go on the merchandise. Then the carriers route themselves through a tunnel (left) under the street to the main store building. Distance from service building to store is 140 feet. In the store (below), carrier first comes to Grand Central where empties and recirculating loads cross paths with full loads. From here full carriers go to mezzanine stock areas.



THE MEZZANINE stock area is covered by a 1/5-mile overhead system. Carrier A-139 selected stock line No. 7 as destination.

ride an Alvey push-bar conveyor at a 60° incline. A clerk on the second floor tags the goods with a receiving record. The packages continue on an Alvey conveyor. By pressing a button, the dispatcher triggers a deflecting bar which diverts the packages down a pipe slide to one of several checking points.

A merchandise checker opens the package, loads contents into a carrier which sits on a Columbus-McKinnon non-powered rail loop behind him. When the carrier is loaded, the checker sets a dial for a stockroom destination and pushes the carrier onto the C-M power rail. The dial on the carrier has 10 numbers, corresponding to stockroom areas.

A Slight Detour

Before reaching its destination, the carrier first travels to a marking room for a little more paper work. Then a worker pushes the carrier to an automatic pickup point for a ride to the Liftrack elevator. The elevators are in pairs, one for up and one for down. Carriers roll onto a short track, trip a switch to work the elevator. If the elevator is busy, the carrier waits until the elevator returns.

From the basement of the service building, the

carrier glides through the tunnel to the store. Where tracks cross, a stop light and electric eye warning signal keep carriers from ramming each other or other obstructions.

In the Store Itself

From the tunnel, the goods go (1) To the basement stock area which supplies basement departments, or (2) to an automatic elevator to the first floor balcony. Carriers switch themselves into the correct area, diverted by transistorized decoding stations which respond to the number on the carrier dial.

A powered conveyor line circles the balcony. Off the line are seven stock areas served by free rails. The setting on the carrier control box takes it to the proper area. If the area is filled with carriers, the carrier continues to circle on the power line until room is available.

Workers unload carriers, placing items on shelves. Then they push the carriers back to the main track for a return trip to the service buildings. The stock areas are as close above the departments they serve as possible. Four shelf trucks, resembling electric dumb-waiters, carry goods from storage shelves to the first floor departments. ♦ ♦

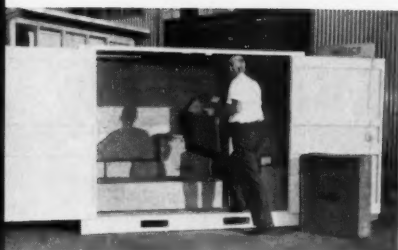
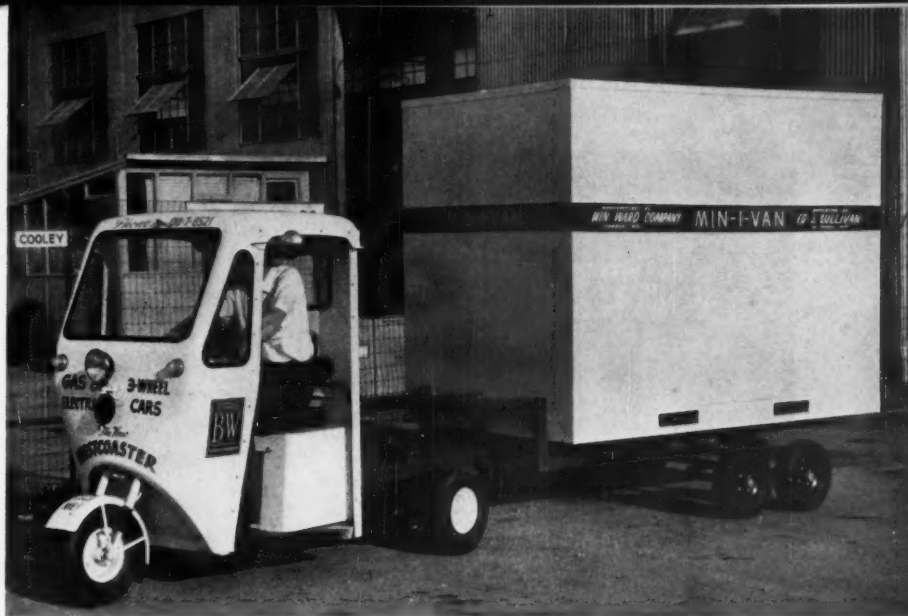


SPECIAL REPORT

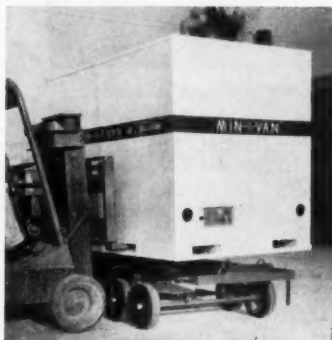
from the
3RD WESTERN
REGIONAL
MATERIAL HANDLING
SHOW

by SCHOLER BANGS

Western Editor



SMALL VAN container is loaded inside the plant . . .



... OR CAN BE LOADED onto highway truck bed . . .



... IT'S LOADED by fork truck onto trailer bed . . .

Vest Pocket

CONTAINERIZATION

CONTAINERIZATION is a word you hear connected mostly with big operations—but at the Los Angeles Show I saw how this technique has been adapted to shipping jobs of all sizes.

It involves a tiny semitrailer van and a 3-wheel, 12.9 hp tractor. They make a handling team that's designed for short hauls between plants. And with companies springing up in clusters here in LA, there should be plenty of work in our own back yard.

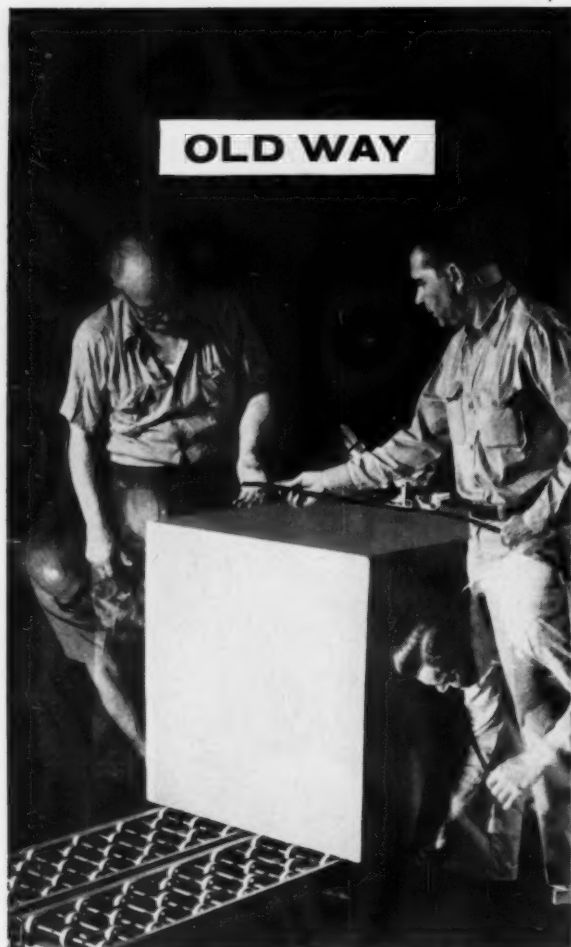
Ed J. Sullivan, Los Angeles distributor and head of Equipment Engineering Service, developed this small-scale containerization system. The idea came to him when he was handed the distributorship of a small 3-wheeler truck, like the ones the mailmen are using.

"Suddenly I was in the 3-wheel business and didn't know exactly what to do about it," Sullivan told me. "Selling 3-

wheel autos to little old ladies in Pasadena didn't seem to be the answer." Luckily for material handling, Sullivan kept out of the Pasadena grandmother market; instead, he started wondering if the 3-wheeler might be converted into a tractor for hauling bins between—and into—plants. His background of distributing material handling equipment helped him work out the details, and the miniature van made its debut at the Los Angeles Show.

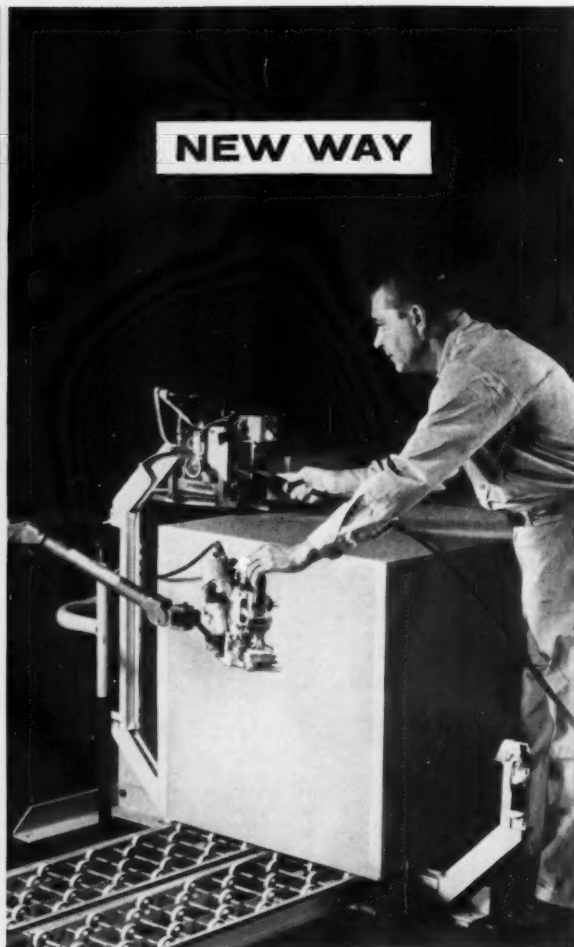
The rig drives right into a plant; a fork truck lifts the van from its trailer bed and lowers it to the floor. When the van is loaded for shipment, the fork lift truck puts it back on the trailer bed, and the rig hits the road again.

The vans have a use in long-distance hauling, too. They are 5 feet wide and 8 feet long, so six of them can be carried by a 30-foot flatbed truck. ♦ ♦



OLD WAY

Without a power strap feeder, one man stands and waits to take the strap and poke it underneath the carton. His partner completes the operation with Signode's electric strapping tool.



NEW WAY

With the power strap feeder, only one man is needed to strap big cartons easily. He puts the strap in the feeder throat and steps on a foot pedal. The feeder carries the strap around the carton.

Costs \$12.50/mo. — saves one man

The Signode Power Strap Feeder has paid for itself quickly on all the big-package strapping lines where it has been placed. It is available on a single payment basis or an annual rental of only \$10 to \$20 a month, depending on model—(\$12.50 for the one shown, not including the electric strapping tool). Yet it frees one man for more productive work. It is simple, versatile...can be used with hand tools or power tools. It is one more way Signode can help make your product cost less to handle, store, ship, and receive. Ask a Signode man for the Power Strap Feeder facts, or write:



First in steel strapping

SIGNODE STEEL STRAPPING CO.

2618 N. Western Avenue, Chicago 47, Illinois

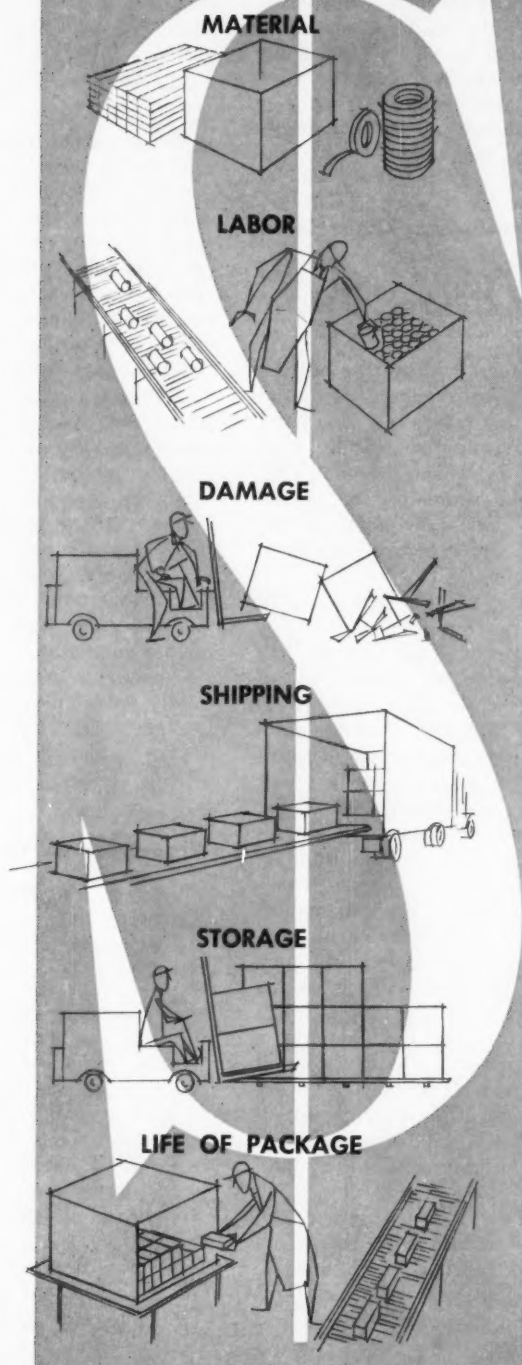
Offices Coast to Coast. Foreign Subsidiaries and Distributors World-Wide
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Circle 152 on Reader Service Card

MATERIAL HANDLING ENGINEERING

FACTORS OF TOTAL PACKAGING COSTS

By Lt. Col. George A. Davies, USAF



PACKAGERS OFTEN fail to consider every cost. They pounce on the obvious container and labor costs . . . and that's it. But it isn't. There are lots more costs to consider before you work out the best packaging for your job.

We consider these factors:

- ▶ Material costs.
- ▶ Loss and damage claim costs.
- ▶ Labor, machine costs.
- ▶ Transportation costs.
- ▶ Handling, stagnant inventory costs.
- ▶ Life of the package cost.

This list is not necessarily in order of importance, nor comprehensive. You perhaps will add to it. But, if you consider these factors, you will have blanketed your costs pretty well.

Before getting into detail, let me tell why a military man such as myself would attempt to advise industrial packagers in the scientific research of costs. Remember: the military manages the biggest packaging business in the world in terms of dollars and number of items.

We know, as do you, that the cheapest package is none at all. But it gives no protection. Going up the ladder of cost, we have an item integrated as part of its own package. Next is the complete pack. And, finally, the costliest is preservation packaging. Sometimes we must package precisely enough to retain an item in perfect condition indefinitely.

Military packaging differs widely from yours when it comes to sales. We don't have to design packaging that will sell goods. We don't have to consider elaborate labeling, color, appealing design, and container convertibility. On the other hand, we must meet all sorts of demands, in many ways as erratic as the demands on you.

We also must consider intangibles such as the value of one B-58 in the air at a specific moment in a specific place to thwart an attack. Or, the value of a radar that won't work because of a defective part. How do you figure packaging costs in supplying parts to defense aircraft or radar? No price is too high when our lives depend upon the packaging.

Now for a more detailed look at our six factors.

Material Costs



Not the easiest to control, material costs are the easiest to figure. Packagers should have a cost list of common materials. Make it detailed, down to the cost per foot of twine, inch of pressure sensitive tape, figured to the nearest tenth of a cent. List costs of cleaning materials,

preservatives, dunnage, labels, glue, and so on.

You'll find cost consciousness reduces costs. Your employees will help reduce costs when you let them make cost cutting decisions. An informed packer realizes that an oversized carton wastes 10 cents plus extra cushioning. He understands how these add up over a year. Help him by posting cost lists and graphs that compare costs. You can invoke incentive bonuses and the like.

Loss and Damage Claim Costs



I suggest you use the Marine and Transit Industry actuarial tables and rates. Tab each item. Exceptions: specifically controlled one time movement, such as flight simulators or missile components, new items in the system and expensive irreplaceable items.

One rule might concede a 10 or 12 percent item cost charge for damage. This may be low because we try to work in all damage costs. These include repair or replacement of the damaged item, repackaging, transportation to origin or to repair facility, and reshipment of the replacement part.

You can cut damage by making packages that deliver 98 percent of the goods undamaged. But you pay penalties in overpacking and higher shipping costs. Therefore, you must decide when overpacking is worth the extra cost. For example, a vital component for radar might have to arrive undamaged every time. On the other hand, it wouldn't be fatal if a box of rations occasionally were damaged.

You in industry should figure intangibles to get total damage costs. These might include permanent loss of business, loss of prestige, contract delay and violation, and others. Here is where you must use manage-

ment intuition and experience. Don't ignore these costs because they're intangible. Sometimes they can be the most important considerations.

Labor Costs



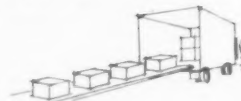
Figure them this way.

Measure how long it takes to complete the packaging cycle. Then add up the labor costs of packing room supervisors, packers, and labor aiding the packers. Divide the labor bill by the number of minutes worked. This will give you the packing unit cost per man minute.

Time an average worker as he completes 10 or 20 identical packages. Figure the average time in tenths of a minute. Multiply by the packing unit cost to the nearest tenth of a cent. This gives the package unit cost.

Remember to figure tangibles . . . overtime and temporary help during peak season. Also figure intangibles . . . delayed income and lost business from tardy order filling. Add in these to get total labor cost. Much easier to manage when you give it this kind of analysis.

Transportation Costs



They usually are simple to understand. Generally, you're concerned with time and due date as well as cost of moving an item. Remember that most surface rates keep going up. Air rates are dropping sharply. Consider using air express, air freight, or air charter shipment before you settle on how you will ship. Remember the effect of air shipment on handling, storage, and inventory costs. And you don't have to determine the rates in carload, less-than-

carload, truck, or less-than-truckload quantities for a straight-weight shipping cost like air. Also, your packaging can be less involved than by most surface means.

Handling, Stagnant Inventory Costs



Package handling, storage, re-handling, building inventories, and insurance may be too high. Here packaging design becomes important. A package may be compact, cost little to ship, protect well, and cost little to make. But it may not stack, may not be suitable for storage.

Another consideration: stationary inventory and warehousing often are an unnecessary burden. Can we sometimes do without warehouses by spending in another direction? I have found that you can consider the user's ultimate cost of possession by all shipping methods and manage accordingly.

Life of the Package Costs



These are costs of handling the package after the user receives it. Most of you are vitally concerned with labeling, attractiveness, reusability for display, reshipment, and so on. We in the military have had items ordered solely for the package. Example: an expensive medicinal soap was ordered in inconsumable quantity for Korea 10 years ago. Our men wanted the ¾-inch oak reinforced outer containers in which the soap was packed. The containers made fine foot lockers, not standard issue at the time.

Other examples: compressed wadding for packaging was used by the mile to weatherproof

quonset huts. The polyvinyl-chloride shrouds for jet engines were made into storm windows and rain protectors.

We must all consider package design for after-use. We must also consider the ease in getting rid of outer packing and packaging materials. To the user this may be costly. The corner druggist has difficulty getting rid of steel strapping and steel drums.

Consumer acceptance may be the most important factor in the cost of your package. You can reduce package cost by writing off some to sales or to sales promotion, but only if consumer acceptance through the package actually increases sales.

There's a dark side to consumer acceptance when it loses sales. I'm reminded of a bird cage maker who shipped his cages disassembled in a box about the size of a shirt box. Even though assembly was easy, customers were unable to do it. So he now ships the cages assembled in a large carton with cushioning materials. His damage rate is higher, but so are his sales. How you figure this in money is peculiar to each case, but it's a legitimate packaging cost. It must be considered in every packaging change you make.

Every package has the six factors regardless of destination. Their relative importance varies from product to product and from industry to industry. You can figure accurately your material, labor, and shipping costs. You can figure slightly less accurately your handling and storage. Damage costs are even less accurate.

Nevertheless, calculate as accurately as you can. Then draw on your experience and old-fashioned common sense to fill in the blanks in your total packaging cost picture. When you do, you'll then know whether your packaging is the best for you. ♦ ♦

Col. Davies is chief of the Packaging Branch, Equipment and Facilities Division, Directorate of Transportation. He credits John Farrington Jr. of Jiffy Manufacturing Co. for some editorial suggestions in this article.

MECO engineered feeders yours is here



MECO engineered feeders are your best investment in quality control if you use bulk materials from crushers, bins or hoppers. Even difficult materials—wet, sticky clay, fine dust, sharp chunks or heavy lumps—can be metered at a uniform rate of feed (a rate that you can easily change if you wish).

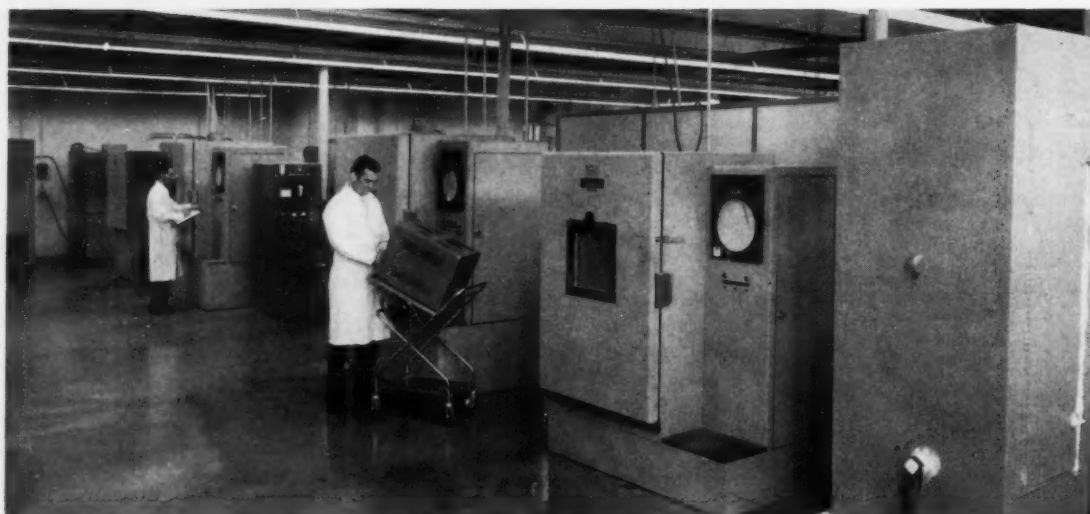
This is the superbly engineered line for heavy duty feeding of quantities up to 150 tons per hour over any distance: **Reciprocating plate feeders** for shale, fire clay, coal and rock. **Apron feeders** for sticky clay, wet or granular materials. **Belt feeders** for maximum feed control accuracy with chemicals, aggregates. **Disc feeders** for short-distance proportional feeding from bins. Easily adjustable for accurate batching of pigments, additives, ground or crushed material and chemicals.

To obtain the **engineered** approach to your feeding application write The Manufacturers Equipment Company, 218 Madeira Ave., Dayton 4, Ohio. Request Bulletin F-1.

MECO

ENGINEERED BULK MATERIALS
HANDLING EQUIPMENT

Circle 124 on Reader Service Card



OVERALL VIEW of the environmental test area of the laboratory shows such chambers as low temperature, high temperature, altitude, and high and low temperature 250,000 feet.

The Role Of The Independent Test



BY WILLIAM H. GRUMET

*General Manager, American Laboratories of Fullerton, Calif.
(Division Of American Electronics, Inc.)*

WHAT CAN THE independent test laboratory do for you?

We can *not* test reliability in to any product. No amount of testing can physically improve a test sample. The value of testing comes from proper analysis and understanding of the test results. Then you can apply this new knowledge to improve your product.

Testing is diagnostic. It gives the packaging and material handling engineer some assurance about his materials and methods. Testing shows him how his product performance and application compares with others in the field.

Our laboratory offers these services:

- Gives professional, rapid unbiased and accurate test data at least cost.
- Tests goods to see if it meets

established specifications.

- Provides repeatable and controlled environments time after time. This makes the test a standard reference or measuring tool.
- Makes accelerated tests.

The lab can simulate flight testing to 100,000 feet at any climb or descent. The lab can set up two or three days of salt spray exposure in a special chamber. This is the equivalent of four or five years of ocean spray. Or 10 to 14 days at controlled humidity can duplicate three or four years in the tropics.

It would be unwise to even try to duplicate all the conditions at which a product might have to work. The important thing is to test it under the conditions it is likely to meet. Once that is done, we can compare different products and techniques using the same yardstick.

For example: we recently were able to show that a new type

packaging material had excellent overall strength and resistance to wear. But it was highly susceptible to fungus and humidity. This led to a conclusion that the item would be very satisfactory in dry climates, but might have to be replaced for jungle or semi-tropical conditions by another material more fungus resistant.

About a year ago, we were contacted by a West Coast tape recorder manufacturer. He had during the summer designed a new commercial line which he was very anxious to introduce nationally in early fall, designed for the Christmas market.

He had evaluated unit performance at the laboratory from the point of view of high fidelity specifications. The unit was found quite desirable, compared to competitive items.

First shipments, however, to the East Coast were quite unsuccessful. Customers reported a large percentage of inoperative



LOW TEMPERATURE TEST is underway on a new package design. This test is to determine handling feasibility at -65° Fahrenheit.



UNDERWATER camera above is being subjected to salt spray testing. 50 hour test is same as 5 year ocean exposure.

Laboratory

units. This problem seriously jeopardized his chances of successfully introducing his new design. When he contacted us, we felt that there might be a possible shipping or handling problem. The tape recorders had worked well on previous tests.

We subjected them to extremely severe low frequency vibration. We made no attempt to simulate any specific condition. We merely cycled the unit from 5 to 60 cycles at increasing levels of vibration amplitude. In 12 minutes, we found that 4 main fastening screws had worked loose. We recommended a simple adjustment to the manufacturer in his production line technique. Special torque wrenches were used to tighten the assembly and the screws were fastened in place with glyptol. Results: he successfully completed his plans for marketing this new item.

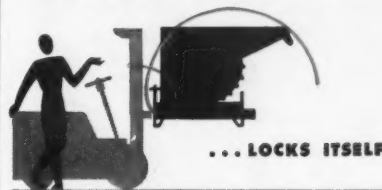
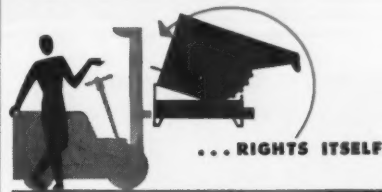
In addition to such functions as described, the laboratory, if

desired, is also in a position to work with packaging engineers to help establish specification standards consistent in repeatable testing procedures and techniques. It also can work with the packaging engineer to help interpret test results and apply them usefully.

To help a good packaging engineer solve any specific problem, there are three broad questions that must be answered satisfactorily.

- (1) What do we test for?
- (2) How do we obtain the test results?
- (3) What is the significance of the test results? How best may we apply the information?

With recognition of the relationship of packaging and material handling to end product, we are in a position to establish a necessary integrated product packaging, material handling test, and design program. ♦ ♦



How to cut scrap handling costs 50%

Here's the fastest, lowest cost method of scrap handling ever devised. Hundreds of industries are now using Roura Hoppers to collect scrap metal. They're placed alongside machines or in strategic locations. When full, lift truck operator picks up loaded hopper . . . transports it to scrap bin or freight car . . . flips the latch . . . and the hopper automatically dumps its load, rights itself, locks itself.

Segregation of scrap is simple. Hoppers can be marked for copper, brass, stainless, etc. Brings higher prices.

Roura Hoppers are made in eight sizes, $\frac{1}{2}$ to 4 yard capacities. Built of $\frac{3}{16}$ " steel plate with continuous arc-welded seams. Heavier plate if desired, also stainless steel or galvanized. Mounted on live skids or a choice of wheels. Standard models available for immediate shipment from stock.

Start cutting costs now . . . with Roura Hoppers.



HERE'S HOW to get more details about Roura Self-Dumping Hoppers. Just attach this coupon to your letterhead . . . sign your name . . . and mail to . . .

ROURA IRON WORKS, INC.

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NEWS ABOUT SPHE



BEST OF SHOW trophy is given to Steve Kuzma (right) by P. H. Paulsen of William H. McGee Co., prize donor.



Couch



Bonin



Leonard



Lynn



Miller



Peters

Plastic Cushioning Popular at Competition

THE JUDGES LIKED plastic cushioning at SPHE's 1960 Packaging and Material Handling Competition. Three of six first prizes in packaging went to entries that relied on plastics for cushioning and shock distribution. The seventh first prize was for a handling system.

Two entries showed complete surface distribution of load by total immersion of the article in a plastic mass. One used Freon-blown polyurethane; the other, heat-expanded polystyrene. Another winning entry used polyethylene support pads for heavy loads. Adv-

vantages: low rate of compression creep and early stabilization.

The other winners included an all metal support system for a large electronic tube, an all-wood container for a missile power unit, and a corrugated container with board and clip supports.

Best of Show award and the accompanying Harold Jackson Trophy went to Stephen Kuzma, production engineer for Allied Chemical Corp.'s Chemical Division. His entry also was tops in the Wirebound Boxes and Crates Division. Following are the winners and their entries:

WIREBOUND BOXES AND CRATES

Stephen Kuzma,
Allied Chemical Corp.'s
Chemical Division

He placed a 13-gallon glass carboy in a hexagonal mold, filled the space with polystyrene beads, and expanded them with live steam. The mold was removed and the plastic-enclosed carboy wrapped with wirebound wood siding, bottom and top. This cut manufacturing and repair costs 30 percent. Labor costs were reduced from \$4.50 to \$1.50 and tare, from 75 lb to 45 lb. Also, material costs, cube, and damage were reduced.



CORRUGATED AND SOLID FIBERBOARD BOXES

Wilburn Couch,
General Motors Corp.'s
Truck and Coach Division

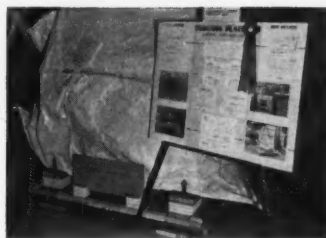
He made a container of 350-lb corrugated board to hold rear center windows of curved glass for motor coaches. The window is held by triangular corrugated board sections, secured by spring steel wire clips and metal staples. This full flotation method cut damage from 20 percent to none. Material, labor, and transportation costs were more than halved.



NAILED WOOD BOXES

Albert Bonin,
Northrop Corp.'s Norair Division

He used polyethylene foam to support costly, bulky items up to 6,000 lb in crates. The foam pads give improved tiedown stability and less deflection creep. Maximum creep, after 2 percent compression at loading is 4.5 percent. And the pads stabilized to maximum creep limit within 25 days during tests.



CLEATED BOXES

R. S. Leonard,
Boeing Airplane Co.'s
Aero Space Division

He worked out a multipurpose cleated box that served as shipping container, inplant transfer box, and inplant stand and test fixture. The box holds an auxiliary power unit for missiles. The box costs 88 percent less than the previous method, saving \$106,178.



GENERAL CATEGORY

Grayson Lynn,
Eitel-McCough Inc.

He packaged a large Klystron power transmitting tube in a two-piece waterproof steel container. The container has valves for pressurization, a moisture indicator, and electric plug-ins. Material savings were cut from \$1,850 to \$1,150.



MILITARY CATEGORY

K. D. Miller,
North American Aviation's
Rocketdyne Division

He designed a reusable container for an explosive-classified solid propellant gas generator for missiles. It uses rigid Freon-blown polyurethane dunnage. At destination, the unit in its container is heat soaked to somewhere between 95° and 105°F. Thermal stability must allow no more than 10-degree loss during two hours when the unit is exposed to -30°F.



MATERIAL HANDLING DIVISION

George A. Peters,
North American Aviation's
Autonetics Division

He developed a modular system of parts racks and trays and an integrated assembly flow. The components include a shipping container, matrix board assembly, loose parts kit holder, work station rack, carrier board, circuit boards, holders, Modubox, storage rack.



They Made The Contest A Success

BY CHARLES L. LIPPMAN,
President, SPHE

SPHE Vice President Harold Kilmer last October asked the Southern California Chapter if it could hold the 1960 competition in Los Angeles. The board agreed. The time was short; but the competition was in capable hands.

Joe Krager Jr. is chairman of the National Competition Committee. He worked closely with Paul Franklin, competition chairman. Paul worked so hard and learned so much that he offered to write a manual for future competition chairmen. We accepted.

Backing up Paul was Norman "Scotty" Maxwell, publicity chairman. Mrs. Olive Salembier was awards chairman. She arranged for the awards and the awards banquet, which was oversubscribed.

Others who helped make the competition a success were Nobel Jones, Southern California Chapter president; Hank Waters, ex-vice president; Ben Kennedy; Ozzie Osborne, and George Peters. There were many more and I want to thank them all. I also thank the judges, some of whom traveled across the country.

Other Winners

Not everyone could win a first prize. Here are other competitors recognized by the judges.

Corrugated and Solid Fiberboard Boxes

Honorable mention: A. G. Lynn,
Eitel-McCough Inc.

Nailed Wood Boxes

Honorable mention: D. R. Lewis,
specification packaging engineer.

General Category

2nd place: S. P. Schumacher,
Minneapolis-Honeywell.

3rd place: J. White, Northrop Corp.

Military Category

2nd place: J. F. Grutzik, Northrop Corp.

3rd place: H. C. Roe, Norton Air Force Base.

Material Handling Division

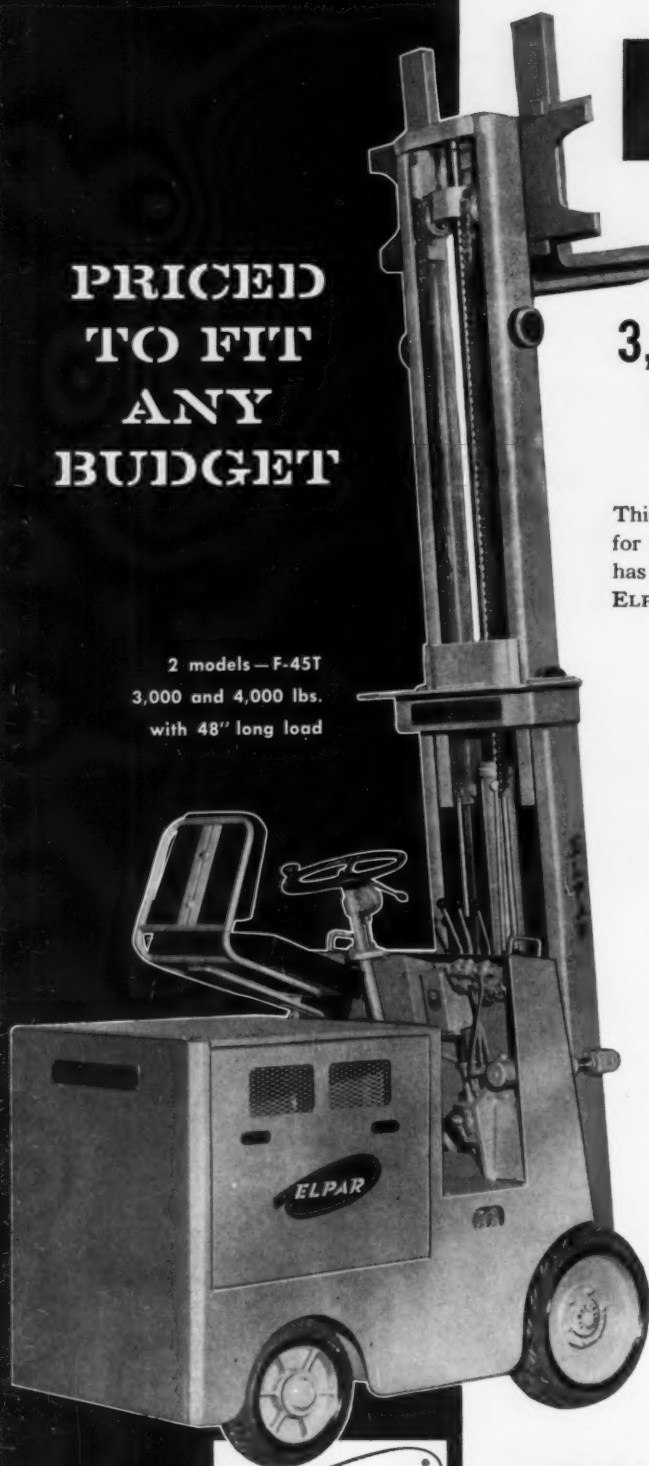
2nd place: M. A. Sweet, W. B. Semco & Associates.

3rd place: C. R. Hanam, Hughes Aircraft.

Honorable mention: P. E. Watts, D. S. Kennedy & Co., and R. L. Drews, Boeing Airplane Co.

**PRICED
TO FIT
ANY
BUDGET**

2 models — F-45T
3,000 and 4,000 lbs.
with 48" long load



ELECTRIC TRUCKS

ELPAR

"F-45T"

**3,000 & 4,000 lb. Cap.
Electric Fork Truck**

This ELPAR fork truck is the new pace setter for the industry. It's priced competitively yet has the traditional quality that is typical of all ELPAR electric trucks. Check these advantages:

FAST—Travel speeds up to 7 MPH and lift speeds to 40 FPM.

COMPACT—Only 35" wide with an 84½" stacking aisle (less forks).

DEPENDABLE—Heavy duty construction, oversize tires, low pressure hydraulics, rugged drive axle, center-sill frame.

SAFE—Wide stance trail axle—26¾" tread, hydraulic wheel brakes, inching control, improved operator vision.

ECONOMICAL—Operates on pennies per day electric power and is designed for fast, easy maintenance.

This truck has been job tested in service on all kinds of jobs and has proved its economy and dependability.

Available for Fast Delivery

WRITE TODAY!
Get full details
on ELPAR'S "F-45T"



THE ELWELL-PARKER ELECTRIC CO.
4231 St. Clair Avenue • Cleveland 3, Ohio
In Canada: Industrial Equipment Company, Ltd.

Double the life—One-third the operating cost.

Circle 64 on Reader Service Card

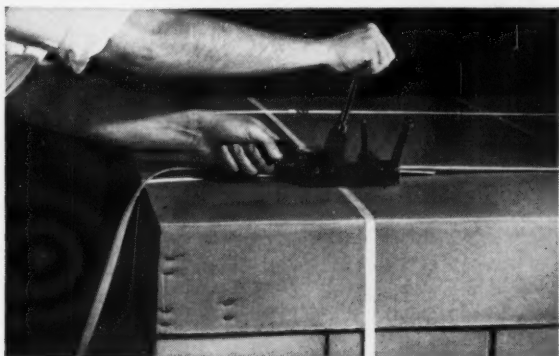
NEW SAVINGS



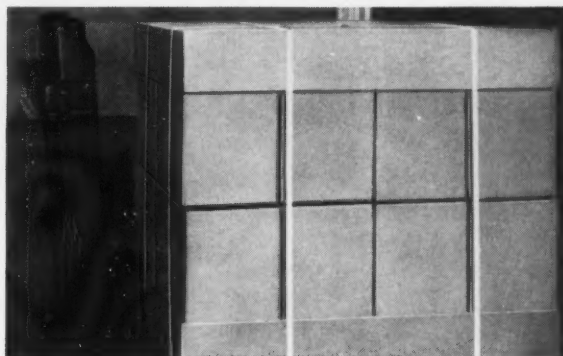
1 New strapping material—new low cost. Made of super-strong Avisco® rayon, AVISTRAP cord strapping costs less than metal strapping and reinforced tapes of comparable strength, offers many more important advantages.



2 Easy handling, lightweight. All coils of AVISTRAP cord strapping weigh 21 lbs. Yardage equals 100 lb. coil of comparable width steel strapping. Simple, low-cost dispensers permit replacement of coils in a few seconds.



3 Low cost per package. You invest less per package with AVISTRAP because its initial cost is low. In many instances, corner protectors can be eliminated. AVISTRAP is also extremely safe to handle, won't injure personnel.



4 Saves on shipping costs. AVISTRAP adds little weight to packages—as little as one-seventh the weight of steel strapping. Result: substantial savings for shippers. Also important, AVISTRAP won't damage merchandise.

AVISTRAP* CORD STRAPPING

Super Strength • Safety • Reduced Damage • Easy Handling • Locally Available



*Trademark of American Viscose Corporation. Patents pending.

AMERICAN VISCOSE CORPORATION, INDUSTRIAL PACKAGING DEPT.
1617 PENNSYLVANIA BLVD., PHILADELPHIA 3, PA.

Make Your Own Test (check to indicate request)

- ☐ Please send me sample and information.
☐ Please put me in touch with distributor nearest me.

Name _____

Title _____

Company _____

Address _____

City _____ State _____

Circle 9 on Reader Service Card

NEW!
Portable Electric
Bag Closing
Machine



CLASS 2100

HERE is a handy little machine that makes bag closing fast, easy, and economical. It is recommended where operations are limited or intermittent and do not justify installation of large, high production machines.

LIGHTWEIGHT—9½ pounds. Carry it anywhere. No installation; requires only an electrical outlet.

POWERFUL—Exclusive top and bottom feed for greater power and production. Direct drive motor with thumb control button.

VERSATILE—Closes bags made of cotton, burlap, jute, multiwall paper, laminated paper. Produces two-thread stitch Type 401, or can be furnished to produce single-thread chain stitch Type 101.

SAFE—Anyone can operate it. No special training required. Can be obtained with overhead suspension. Also, can be supplied with pedestal bracket.

Union Special[®]
MACHINE COMPANY

Originator of
Filled Bag Closing Machines
415 N. Franklin St., Chicago 10, Illinois

Circle 165 on Reader Service Card

CATALOGS and BULLETINS

offered by advertisers

Install your own overhead conveyor systems . . . with R-W continuous powered conveyors. Find out how from Richards-Wilcox Manufacturing Co.

Circle 143 on Reader Service Card

Protect against humidity . . . with Hy-poly multiwall bags. They contain calcium chloride in the kraft paper. Circle number for more information from International Paper Co.

Circle 96 on Reader Service Card

Get versatility . . . with the Pay-loader tractor shovels. They're also tops for maintenance work. Circle number for more information from The Frank G. Hough Co.

Circle 91 on Reader Service Card

Priced to fit any budget . . . is the new Elpar electric fork truck. It comes in 3,000 and 4,000-lb capacities. Send for full details.

Circle 64 on Reader Service Card

Get high efficiency . . . for the life of the drive with Acme roller chain. Find out how from the Acme Chain Corp.

Circle 3 on Reader Service Card

Simplicity is the secret . . . of Joy Limberoller conveyor idlers. It's a flexible troughing idler with only two bearings and one moving element. Circle number for more information from Joy Manufacturing Co.

Circle 101 on Reader Service Card

Stack in 6-ft aisles . . . with the Towmotor Naro-Aisle-Stack, only truck of its kind. Recovers 36% of lost plant space. Find out more from Towmotor Corp.

Circle 161 on Reader Service Card

Cut costs of fixed-point shipping and receiving . . . with a new ground-level loading system. Magline Inc. will show you how to eliminate double load handling.

Circle 115 on Reader Service Card

You'll find more uses daily . . . for an Austin-Western hydraulic crane. Find out full details on this versatile mobile crane.

Circle 16 on Reader Service Card

Eliminate one-at-a-time handling . . . with Faultless casters. Parts stack high, roll easily, smoothly on castered equipment. Send for more information from Faultless Caster Corp.

Circle 71 on Reader Service Card

Lift easily, safely, efficiently . . . with a trolley-mounted Coffing Quik-Lift electric hoist. Circle number for more information.

Circle 43 on Reader Service Card

Convey light products swiftly and silently . . . with Wendway conveying systems. Find out what they can do for you by circling number.

Circle 166 on Reader Service Card

Get a sense of touch . . . with your hoist. A P & H two-speed hoist spots massive loads perfectly. Circle number for bulletin from Harnischfeger.

Circle 88 on Reader Service Card

Whatever you pack or ship . . . the Bostitch Economy Man probably can help you. Send for information about this service.

Circle 27 on Reader Service Card

It's easy to standardize . . . with a Modubox system. Send for more information on these versatile boxes made by Hollywood Plastics Inc.

Circle 90 on Reader Service Card

Dependable as the gravity that runs them . . . are Buschman standardized portable conveyors. Send for Buschman literature.

Circle 30 on Reader Service Card

Shrink dunnage as much as 50% . . . with Goodyear Tire & Rubber Co. Super-Cushion dunnage bag. Circle number for more information.

Circle 83 on Reader Service Card

A new concept in industrial door design . . . comes with your Byrnover industrial door. It's trackless and fast-operating. Send for brochure.

Circle 31 on Reader Service Card

Get high production capacity . . . with Michigan tractor shovels. Also, dependability, speed, and maneuverability. Send for more information from Clark Equipment Co.

Circle 41 on Reader Service Card

Capacities range from 2 to 600 tons . . . with trailers and industrial cars from Eastern Car & Construction Co. Circle number for the Eastern catalogs.

Circle 62 on Reader Service Card

Beat excessive tape curling . . . with Gilman Paper Co. gummed tapes. Find out how you can stop paying for waste that comes from curling.

Circle 80 on Reader Service Card

MATERIAL HANDLING ENGINEERING

Circle 78 on Reader Service Card →

GAYLORD PACKAGING DELIVERY IS ALWAYS ON THE BALL

Your packaging operation can't get to first base without steady container delivery. So make Gaylord your mainstay—because Gaylord's 16 plants all over the country pitch in to keep your boxes coming, day in and day out, when you want them, where you want them.

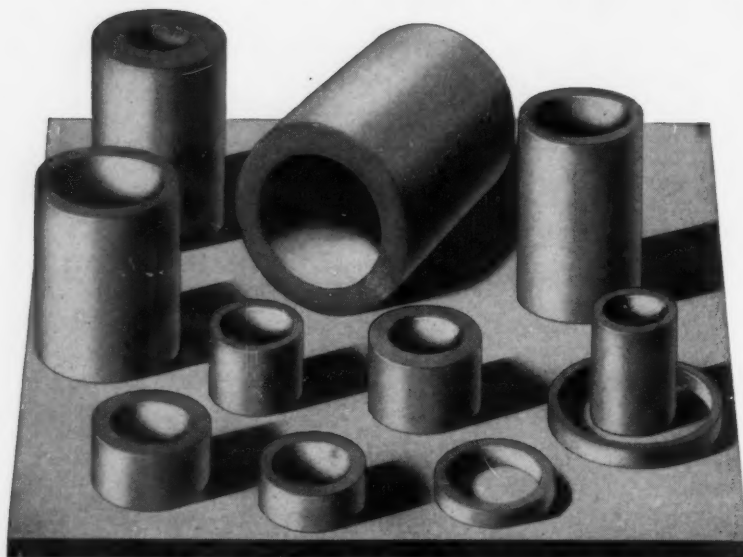
Don't let erratic supply throw you a curve. Call your nearby G-Man now, and get him on your team.



CROWN ZELLERBACH CORPORATION
GAYLORD CONTAINER DIVISION



IN CANADA • CROWN ZELLERBACH
CANADA, LTD. VANCOUVER, B. C.
HEADQUARTERS, ST. LOUIS
PLANTS COAST TO COAST



CLEVELAND CONTAINER HEAVY DUTY TUBES AND CORES

Illustrated are tubes and cores made of high quality chip-board. These heavy tubes can be made with jute paper or kraft to provide even greater strength and rigidity. Available in diameters up to 24", they can be cut in narrow widths or in long lengths if desired.

Pre-printed papers can be applied outside or inside at small additional cost. For added protection tubing may be wax impregnated or lined with barrier papers.

A few of the many uses are for spacers, support tubes, tape cores, protectors for precision parts, shipping tubes; as cores for spools, paper rolls, stitching wire and cloth winding. Shipping tubes can be supplied in mill lengths and fitted with metal end plugs.

Write for brochure explaining complete line of tubes for every need . . . small or large; for electrical uses . . . with curled ends, punched, or grooved.

Why pay more? For quality products . . . call CLEVELAND !

THE CLEVELAND CONTAINER COMPANY

Plants and Sales Offices: 6201 BARBERTON AVE. • CLEVELAND 2, OHIO
Cleveland
Detroit
Chicago
Memphis
Los Angeles
Plymouth, Wis.
Jamesburg, N. J.
Fair Lawn, N. J.

ALL-FIBRE CANS • COMBINATION METAL AND PAPER CANS
SPIRALLY WOUND TUBES AND CORES FOR ALL PURPOSES

CLEVELAND CONTAINER CANADA, LIMITED
Plants & Sales Offices: Toronto & Prescott, Ont. • Sales Office: Montreal

Circle 42 on Reader Service Card

Sales Offices:
New York City
Washington, D.C.
Rochester, N. Y.
West Hartford, Conn.
•
Abrasive Division
at Cleveland

CATALOGS & BULLETINS

continued

Your stacks will be durable, lightweight . . . with metal boxes made by Molded Fiber Glass Tray Co. Get a descriptive catalog.

Circle 120 on Reader Service Card

Get faster, easier pallet truck operation . . . with a Wright-Hibbard model that's truly hand operated. Circle number for more information.

Circle 173 on Reader Service Card

Solve stock, store, ship problems . . . with Republic Steel Corp. products. Get more information on traverses, handling units, metal lumber, and Stack 'N Store units.

Circle 142 on Reader Service Card

Find out how much you can save . . . by using Palmer-Shile adjustable storage racks. Circle number and get full details from the company.

Circle 135 on Reader Service Card

Solve handling problems . . . with power and gravity conveyors coupled with improved storage. Find out how from The Rapids-Standard Co.

Circle 11 on Reader Service Card

Special purpose vehicles are more efficient . . . last longer with Rockwell-Standard driving assemblies, torque converters, and planetary axles. Circle number for more information.

Circle 144 on Reader Service Card

Get maximum power out of every drop of fuel . . . from Power Crater engines in Series F trucks from Allis-Chalmers. Circle number for more about these lift trucks and engines.

Circle 5 on Reader Service Card

Cost-cutting trucks . . . come from The Raymond Corp. Circle number for more about the walkie pallet stacker, walkie pallet truck, lightweight hydraulic pallet truck, and portable hydraulic elevating table.

Circle 140 on Reader Service Card

Get details on Signode air power tensioners and sealers . . . by sending for a free booklet. Circle number for an easy way to put through your request.

Circle 153 on Reader Service Card

You'll have gummed tape at your fingertip . . . and it's electronically dispensed. Find out more about this machine from Diagraph-Bradley Industries Inc.

Circle 59 on Reader Service Card

Give profits a lift . . . with Shepard Niles job-mated hoists. They have the right combination of capacity, clearance, speed, and controls.

Circle 151 on Reader Service Card



Photo Courtesy Ray Mines Division, Kennecott Copper Corporation

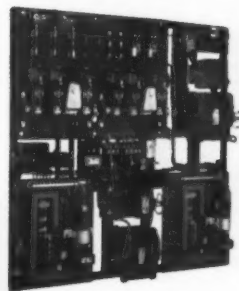
FOR EVERY APPLICATION, THERE'S ONE CRANE OUTSTANDING...

IN COPPER SMELTERS: Fast, safe, precision control is essential in a converter aisle like this. This 60-ton P&H crane is equipped with the finest a-c crane control yet designed — P&H Electronic Stepless Control and Magnetorque electro-magnetic braking.

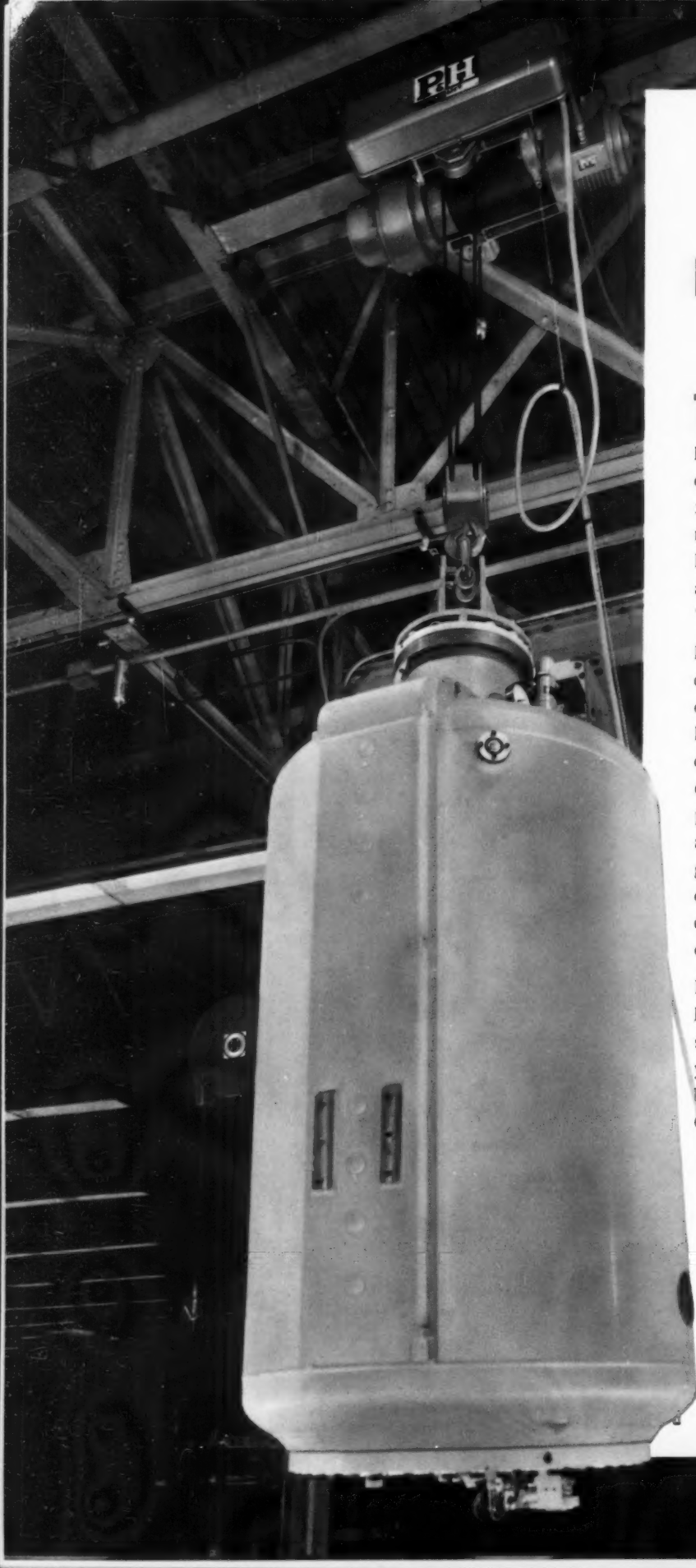
Here, as in every P&H crane installation, P&H engineers have taken all factors affecting performance into consideration. Exact requirements of this converter-aisle installation have been carefully integrated into the overall design.

If this kind of custom engineering makes sense to you for your operation, why not send for more information? Write for bulletin C-42, Dept. 118, Harnischfeger Corporation, Milwaukee 46, Wis.

Heart of the P&H Electronic Stepless Control is this a-c electronic hoisting-lowering control panel. With this modern electronic control on a three-motor crane, as many as 244 electrical contacts are eliminated. Speed-load characteristics of Electronic Stepless Control far exceed any other conventional a-c or d-c controlled crane!



HARNISCHFEGER
Milwaukee 46, Wisconsin



HERE'S A HOIST WITH A "SENSE OF TOUCH"

This P&H two-speed hoist is perfect for spotting the massive, but delicate, head of a 2-million volt industrial x-ray machine. There's a high speed for quick movement . . . and a slow speed for sensitive, hairline placement. The control is responsive and sure, permitting the operator to literally "feel" his load into position.

P&H Balanced Design Hevi-Lift hoists are engineered to provide just this kind of "no-compromise" performance. Every part of these hoists — including the 24-volt push-button control — has been matched or balanced with every other part for maximum strength, temperature, and performance characteristics. As a result, Balanced Design Hevi-Lifts provide greater accuracy of control under all load conditions, stand up longer under heavier duty cycles — with less maintenance — than any other hoists made today!

Find out more about P&H Balanced Design hoists. Available in standard single- or two-speed models, to fit your particular need. Call your local P&H hoist distributor, or write for bulletin H-55, to Dept. 224, Harnischfeger Corporation, Milwaukee 46, Wisconsin.



HARNISCHFEGER

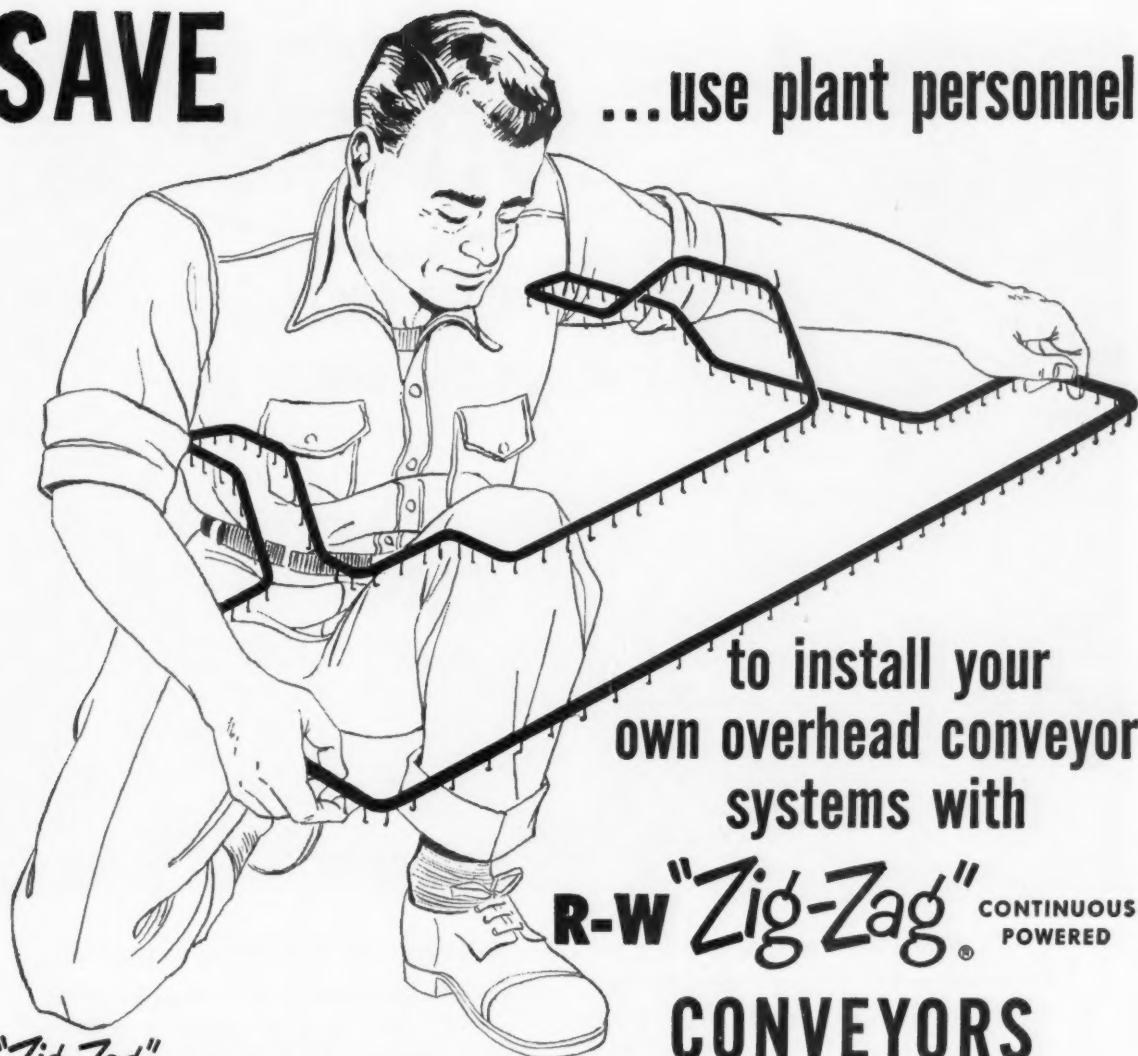
Milwaukee 46, Wisconsin



Photo courtesy General Electric Company, X-Ray Department

SAVE

...use plant personnel



to install your
own overhead conveyor
systems with

R-W "Zig-Zag" CONVEYORS CONTINUOUS POWERED

"Zig-Zag" FEATURES...

- **FLEXIBLE**... easily moves up, down, in, out and around... will carry unit loads up to 125 lbs. at speeds from one inch to 100 feet per minute. Easily installed in any plant.
- **SAFE**... all moving parts of the chain are fully enclosed and protected from dirt, dust, etc.
- **STRONG**... a continuous chain of alternate horizontal and vertical wheel units travel through a rugged steel track.
- **EFFICIENT**... designed, manufactured and backed by the leading firm in this field for over 75 years... Richards-Wilcox.

R-W also manufactures other top-quality overhead conveyor systems to meet the rugged demands of industrial and commercial use. This line includes:

- R-W "TWIN-TRAK" OVERHEAD AUTOMATIC DISPATCH SYSTEMS... CATALOG NO. F-192.
- R-W "TRU-TRED" MONORAIL CONVEYORS... CATALOG NO. A-64.
- R-W "SAFE-RAIL" CONVEYOR EQUIPMENT... CATALOG NO. A-94-R.

It is easy to do... in fact it is much like "building with blocks". You merely take so many standard R-W "Zig-Zag" conveyor components and put them together into a custom conveyor system to meet your exact requirements. It is economical—for you can use your own plant personnel to "self-assemble" and install an R-W "Zig-Zag" Conveyor. If you need assistance, there is an R-W Sales-Engineer near by to serve you. Expansion can easily be accomplished at a later date... again by using standard "Zig-Zag" components and your plant personnel to "add on" to the original system. SAVE with R-W "Zig-Zag" Conveyors... they are economical to purchase... economical to install... and economical to maintain. Ideal for small or very large installations. Naturally we will engineer and install a "Zig-Zag" system if you so desire. Write today... request Catalog No. A-93R.



Richards-Wilcox

MANUFACTURING COMPANY

MATERIAL HANDLING DIVISION

420 W. THIRD ST. • AURORA, ILL. • Branches in all principal cities

Circle 143 on Reader Service Card

JULY, 1960

← Circle 88 on Reader Service Card



• Moto-Truc "walkie" pallet trucks are a sure fire answer to low cost pallet handling. They cost less initially . . . they cost less to operate and maintain. And, you can count on them to do more work, day in and day out.

Key to the handling efficiency of these tough little "walkies" is their *simplicity*. You'll agree there is no surer way to keep costs down than to use trucks that are rugged and simple . . . no gadgets or tricky mechanisms. Fancy gadgets add to the cost, are expensive to maintain

and add nothing to the work output of the truck.

People in all kinds of plants — large and small — have learned they can depend on MOTO-TRUC "walkies" for more work at less cost. Why don't you investigate their money saving advantages today!

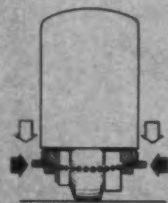


Write For Your
MOTO-TRUC Catalog!

The MOTO-TRUC Co.

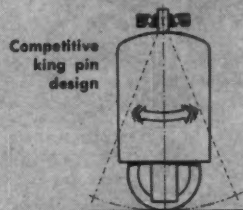
1955 EAST 59th ST. • CLEVELAND 3, OHIO

CIRCLE OF BALLS — another MOTO-TRUC design exclusive



Moto Truc exclusive
"Circle Of Balls" design

All Moto-Truc Drive Units are mounted on a large diameter "Circle Of Balls" designed to provide solid lead support in the same horizontal plane as the drive axle. This mounting takes all the thrust preventing wobble and play caused by starts and stops. The "Circle Of Balls" also permits smooth easy steering. Contrast this maintenance free drive unit mounting with other makes using king pin construction and additional rollers to take the thrust strain off the king pin. You will quickly recognize "Circle Of Balls" drive mounting feature as one more reason why MOTO-TRUCS are more dependable.



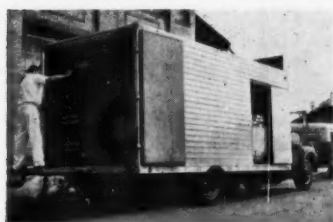
Competitive
king pin
design

The MOTO-TRUC Company
Cleveland 3, Ohio

COST CUTTING IDEAS

\$ Modified Van Saves Handling

The Ambassador Laundry of Oakland, Calif., modified a 2-ton delivery van. They mounted on it a Watson Weightlifter.



The high ceiling van accommodates their standard relay hand trucks, which are often piled 7 feet high with laundry. The tailgate was needed to lift and lower these heavy loads where matched docks or additional help was lacking.

Sled runners at the back of the truck give additional support to the long and extremely low rear overhang of the loaded van body.

- The gate has a 1,300-lb capacity. *The company reports that the equipment quickly pays for itself in savings in handling and time.*

Circle 250 on Reader Service Card

\$ Container Saves 25%

Diesel-electric locomotive operators who order resistors from the Repair & Renewal Parts Sales Section of General Electric Company's Locomotive & Car Equipment Department



saves shipping charges on the product. GE has adopted a corrugated container (background) which gives shipment savings of 25 pounds. It allows the customer to extract the resistors from the box with a knife.

- Container offers better protection of the renewal parts. Packaging specialists at the GE Section point to an average 25 percent savings per 100 lb unit in freight charges. And the company has benefited in savings in its handling, warehousing, and in disposal of the cardboard container.

Circle 251 on Reader Service Card

\$ Receptacles Cut Costs

Vulcanized fibre material handling receptacles cut maintenance costs and speed up merchandise handling at the Butler,

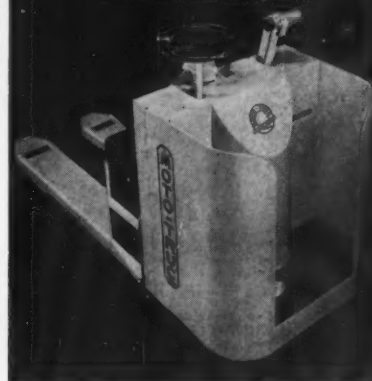


Pa. warehouse of Western Auto Supply Co. A national retailer of automotive and home goods, it uses the fibre receptacles to ship small auto parts and accessories, household and garden supplies, and other small items to its retail stores. The Kennett receptacles are made by National Vulcanized Fibre Co. They're made of fibre-armored plywood, a strong, lightweight material.

- *The company reports maintenance cost of only \$250 a year, compared to \$2,000 a year for previous system cost.* A number of the receptacles can be stacked one on top of the other. This obtains better use of the cube with-

MOTO-TRUC

**Leads
the field in
Pallet
Trucks**



This small rider model is fast and maneuverable

■ If you need a truck that is almost as small as a "walkie" but fast and rugged like a rider model this MOTO-TRUC "Ride-A-Man" pallet truck is your answer. It's only slightly larger than MOTO-TRUC's famous "walkie" pallet yet it provides a roomy operator compartment, wheel steering, foot brake and dead man control. Investigate the advantages of this MOTO-TRUC model for your pallet handling jobs.

Write For
Moto-Truc Catalog
— full specifications
and dimensions



**THE
MOTO-TRUC
COMPANY**

1955 East 59th Street
Cleveland 3, Ohio

Circle 123 on Reader Service Card



CLEANING A 34" PATH, the new Tennant "40" sweeps congested areas at normal walking speeds

New low-cost sweeper out-performs any other sweeper of its size

You've never seen a sweeper like this... the new TENNANT Model 40.

It's fast... 2 to 5 times faster than a man with a broom... and it equals "big sweeper" standards of cleanliness!

Operating at speeds up to 3 mph and cleaning a 34" path, the compact Model 40 can sweep about 1,500 square feet in 5 minutes time... averages 8,000 to 18,000 square feet per hour in most plants.

It's easy to use in crowded, congested areas. Turns in its own tracks.

Space-saving design (33" clearance) is ideal for narrow aisles and enables the Model 40 to go through standard doors.

It sweeps extra clean, gives results never before possible in sweepers of this size. Powerful vacuum-and-brush system draws dirt from cracks and gets fine dust that brooms miss. Assures almost 100% dust-free work.

WRITE TODAY for illustrated bulletins, photos, and performance data on this unusual new sweeper. G. H. Tennant Co., 707-H N. Lilac Drive, Minneapolis 22, Minnesota.



Industry's Most Widely Used
POWER SWEEPERS



Model 80 Sweeper cleans 53" path



Model 50 Sweeper cleans 40" path



Electric Sweeper cleans 48" path

SPECIALIZED MAINTENANCE EQUIPMENT

Circle 160 on Reader Service Card

COST CUTTING IDEAS

continued

in a trailer. Illustration shows how empty receptacles nest neatly, requiring little warehouse space.

Circle 252 on Reader Service Card

\$ Hose Rack Saves Space

• An industrial hose storage rack used by Dayton Industrial Products Company, a division of The Dayton Rubber Company, has reduced warehouse space requirements 50 percent and has reduced order handling time by 30 minutes.



Developed jointly by the company and the Unistrut Corporation, the racks store bulky industrial hose reels on individual axles. Special bays are on an A-frame rack. The hose is stored in pyramid fashion on racks 10½ feet high. As many as eight reels are in each bay. Since each hose reel rests on an individual axle, the hose can be unreeled without removing the reel from the rack.

Circle 253 on Reader Service Card

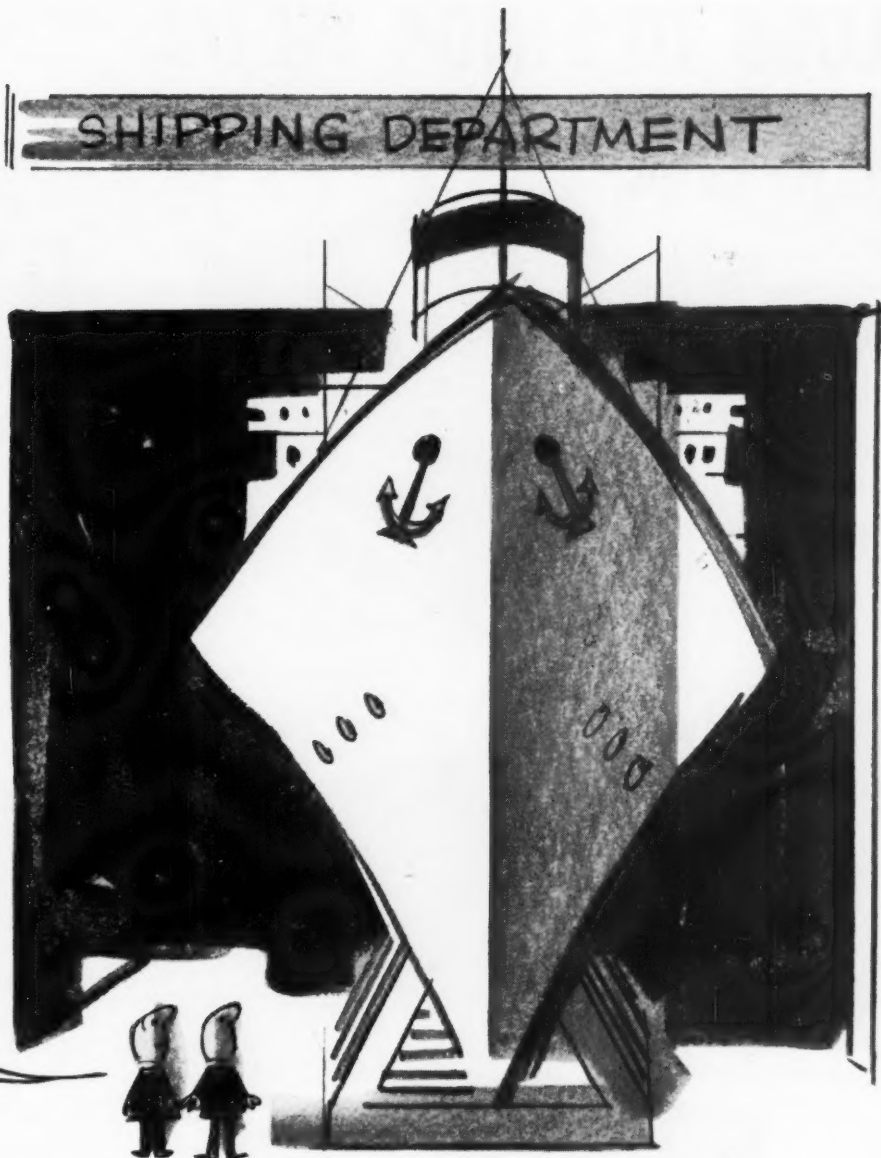
\$ Fine Wire Handled Easily

The Hudson Wire Company has a new wire package for bare, plated and insulated fine wire. It's called Hud-Pak, and is available to all customers upon specification.

• The company reports that the Hud-Pak permits fine wire to be handled and unpacked with speed and versatility never before possible.

SHIPPING DEPARTMENT

Frankly, Harry,
this one may
even stop
the Bostitch
Economy Man



Even if the packaging problem seems too big to handle, it's worth your while to check with a Bostitch Economy Man for suggestions.

One did help work out a giant corrugated carton for a line of boats. Packing time was reduced 50%. Out of 3000 shipments, 2998 arrived at their destination completely safe. Two had minor mars. With wooden crates, damage in transit was a common headache for the company and its dealers.

Whatever you pack or ship, the Bostitch Economy Man can probably help you. Working with a wide variety of Bostitch staplers and staples—and with the world's largest fund of stapling experience at his disposal—he'll come up with a time and money saving answer if anyone can.

If you have shipping room problems, ask your Bostitch Economy Man to look them over. He's listed under "Bostitch" in the telephone directory. Call him.

Fasten it better and faster with

* **With every Bostitch machine you get...** *
* the right combination for your needs from 800 staplers and over 200 staples... nation-wide parts, *
* service and technical aid backed by the industry's *
* most modern factory... assurance that Bostitch *
* products will operate to your complete satisfaction. *

BOSTITCH[®]
STAPLERS AND STAPLES

707 BRIGGS DRIVE, EAST GREENWICH, RHODE ISLAND

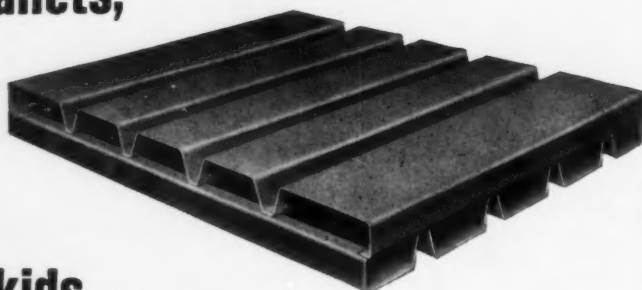
Circle 27 on Reader Service Card

LOOK TO UNION METAL

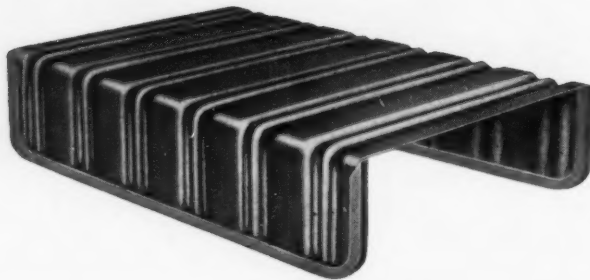
for boxes,



pallets,



skids



Detailed information covering advantages, features and complete range of designs is readily available.

THE UNION METAL MANUFACTURING COMPANY
Canton 5, Ohio • Brampton, Ontario

UNION METAL

Material Handling Equipment

Circle 164 on Reader Service Card

COST CUTTING IDEAS

continued



The method consists of a tapered barrel spool in a shipping container which operates with supplementary equipment called a De-Paker. The De-Paker acts as a tensioning and control device for high-speed payoff by the customer. The outer container is strong, resists dents, and is water-resistant. The package may be used on any wire size, bare, plated or insulated, from 14 to 38 AWG.

Circle 254 on Reader Service Card

\$ Aisle Width Cut In Half

Kaiser Aluminum & Chemical Sales, Inc., Chicago, is experimenting with angle and perpendicular stacking to see which is best for its warehouse and product line. They have added an innovation that functions



MATERIAL HANDLING ENGINEERING

Hy-poly kraft by International Paper



This "Hy-poly" Bagpak_® multiwall was given a 360-hour Turkish bath to demonstrate its moisture-resistant properties.

Trial by steam bath!

Read how new humidity-proof Hy-poly kraft makes medium- and low-density polyethylene sheets extravagant by comparison.

THE multiwall bag in our picture is made of Hy-poly kraft. It contains *calcium chloride*.

International Paper steamed this multiwall in 90% relative humidity at 100° F. for 360 hours! (Unprotected, under these conditions, calcium chloride takes on 2½ times its weight in water in about an hour.)

But when the bag was opened, the thirsty crystals spilled out as

though they had been stored in the middle of the Sahara!

Bagpak's Hy-poly kraft is not only humidity-proof. It *saves money*, too. Savings range from \$2 to \$16 per thousand multiwalls.

Hy-poly kraft is so superior to medium- and low-density PE sheets that you get equal, if not greater, moisture-vapor protection from a coating about *half as thick!*

This dramatic new barrier sheet is a product of 62 years of papermaking and packaging experience. It is only part of a *complete* multiwall packaging service offered to you by International Paper.

Whatever your multiwall packaging needs, it will pay you to talk to your Bagpak packaging engineer. He has complete information. It's yours for the asking.



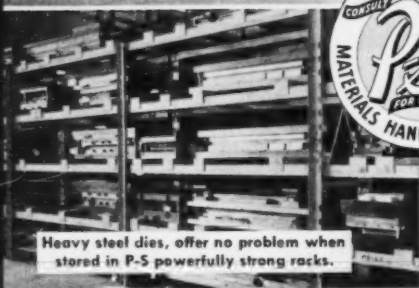
INTERNATIONAL PAPER

BAGPAK DIVISION • NEW YORK 17, N. Y.

Circle 96 on Reader Service Card

How Much Money Can You Save In Your Storage Area?

Diesel oil and gas engine miscellaneous parts efficiently stored in P-S racks.



Heavy steel dies, offer no problem when stored in P-S powerfully strong racks.



Storage and simple selection of electrical stock in racks.



Racks may be galvanized for outside storage purpose.



24 feet high racks in automotive plant receiving area.



POWERFULLY STRONG

Adjustable

STORAGE RACKS

Simple and Easy to Assemble

- **NO BOLTING**
- **NO WELDING**
- **NO SMALL PARTS**

Designed and built for any type of storage space requirements, to save you time and money by eliminating multiple handling operations. Can be used anywhere, in any size area, in single, double or multiple sections, to store materials of various sizes, shapes and weights. Also can be galvanized for outside use. For rigid, non-sway support, adjustable members lock by hand into double slots set at angle on uprights at level desired. For a solution of your materials handling problem always consult Palmer-Shile.



Aluminum and copper being handled in racks adjustable to various height openings.

DESIGNED AND MANUFACTURED BY

Palmer-Shile Co.

16012 FULLERTON AVE., DETROIT 27, MICH.

Offices in Principal Cities
EXPORT DIVISION

75 West Street, New York 6, New York

COST CUTTING IDEAS

continued

equally well with either type stacking.

● This is coordination of hand pallet and fork lift truck operation to cut waste aisle space in half. In the building wire section, all load placement is by an American pallet load lift made by the American Pulley Co. It's 27 inches wide, with 48 inch forks. It has a carrying capacity of 4,000 lb.

The fork truck brings 800-lb pallets of building wire stacked three high to the wire storage area. Then the pallet truck picks up all three at once, stores at 90 degrees to the aisles. The pallet truck maneuvers the stacked wire in 5-ft aisles.

Circle 255 on Reader Service Card

\$ Packaging Reduced 25%

● Swift and easy protective packaging has resulted in a 25 percent reduction in packaging costs for the Terado Company,



St. Louis, Mo. The manufacturer of electric power converters uses rugged, lightweight Tekmold units by Bemis Bro. Bag Co.

The units provide excellent shock-absorbing qualities, and protect against package puncture. The preformed units float the converters in suspension during transit. Both the end cap and overall units eliminate movement of the converter and its delicate components within the corrugated folding box which serves as the master container.

Circle 256 on Reader Service Card

← Circle 135 on Reader Service Card



*Agrico: another of the major fertilizer firms
owning Michigan fleets*

Michigans rated high in output, maneuverability, low maintenance

Use of one of the world's largest fleets of Tractor Shovels has helped The American Agricultural Chemical Company of New York City achieve important savings.

Typical of their Michigan-equipped plants is the one shown—at Humboldt, Iowa.

Here, of the nine sizes of Michigans available, Agrico owns 1¼ yd Model 75's and 2¼ yd Model 125's. Four of them. The first three were purchased from Michigan distributor, Hawkeye Machinery Co., Des Moines, in 1955 . . . Michigan speed, maneuverability, and the machines' fully-sealed all-Clark power trains considered major cost-reducing benefits over existing equipment. The success of these three machines led, as production demands increased, to purchase in 1956, of the fourth Michigan Tractor Shovel.

**36,400 hours:
virtually no downtime**

When the above picture was taken, the four Michigans had compiled a

total of 36,400 working hours. Outside of an engine overhaul on one machine at the 4200 hour mark, they had lost virtually no assigned work time. The Michigans are exceptionally rugged and dependable, says a company official. Another company spokesman, surveying records from 37 Agrico plants, adds, maintenance costs on Michigans are exceptionally low generally.

At Humboldt, the company's four Michigans handle all kinds of material. The 2¼ yd Model 125A is used for bulk shipment of finished super-phosphate. It carries an average of 3,650 lbs per load. Trips, stockpile to bulk shipment conveyor, about 500 ft one-way, take the Michigan about 2 minutes. This includes time to negotiate sharp corners and go across railroad tracks between buildings.

**1¼ yd unit has capacity
up to 75 tons hourly**

In the same building, at the same time, Agrico uses one of their Model 75A Michigans for manufacturing. The 1¼ yd machine supplies all super-

phosphate, potash, and other dry materials needed for plant production. Capacity of this Michigan Tractor Shovel on short hauls ranges up to about 75 tons per hour.

The two other 1¼ yd Michigans haul the finished fertilizer—18 grades in all—to bulk and bagged shipping conveyors. Even in peak days, these two rigs supply all of the finished materials for bagged and bulk shipping facilities.

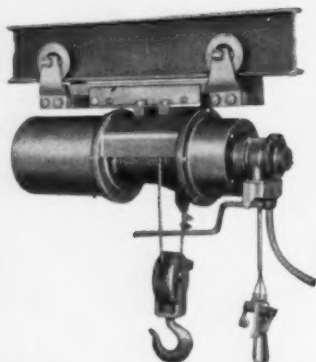
High production capacity—plus dependability—plus speed and maneuverability—are three of the most important reasons for Agrico's repeat-buying of Michigans. Let us show you, in *your* plant, how these advantages can help you too.

Michigan is a registered trademark of
CLARK EQUIPMENT COMPANY
Construction Machinery Division

**CLARK®
EQUIPMENT**
2445 Pipestone Road
Benton Harbor 7, Michigan
In Canada:
Canadian Clark, Ltd.
St. Thomas, Ontario

Circle 41 on Reader Service Card

Worth Looking Into ... DETROIT AIR HOISTS



Ask for
Bulletins
860, 861, 862

Push Button
Control

Other
Modern
Design
Features

Consult us on Air Hoists for every
type of application

DESIGNERS AND MANUFACTURERS
FOR NEARLY SIXTY YEARS

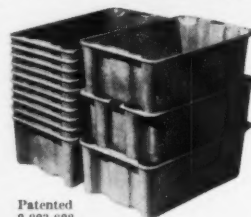
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Designers and Manufacturers Since 1905

LEWIS TOTE PANS

are
STRONG

One-piece fiberglass molded construction; can't rust, rot, dent or bend. Stack-n-Nest® pans handle up to 3000 lbs. safe static load. Available in 8 sizes, three attractive molded-in colors.



Patented
2,823,828
2,823,829



LIGHTWEIGHT

Lighter than an aluminum pan of the same size, these general purpose Lewis fiberglass pans handle bigger payloads with less effort.

... *versatile*

This Stack-n-Nest® truck is only one of the many different Lewis containers, each designed for a variety of handling operations. There are trays, pans, boxes, and trucks to fit all your handling requirements.



SEND FOR THE **BIG** LEWIS CONTAINER CATALOG TODAY

G. B.

Lewis

COMPANY

607 MONTGOMERY STREET • WATERTOWN, WIS.

LOW
Initial Cost
INEXPENSIVE
to install
EASY
to Operate



AERO-BOARD

Air Powered Hydraulic DOCKBOARD

CUSTOM ENGINEERING SERVICE

The standard AERO-BOARD is adaptable to most docks, but if it does not fit your requirements, Freightliner will custom engineer and manufacture AERO-BOARDS for your specific needs.

The time and work proven standard AERO-BOARD is easily installed on most docks—NEW or old—flush or bumper type. Its unique design gives you a rugged, safe, easy-to-operate, manual-automatic dockboard that requires NO ELECTRICAL CONNECTIONS.

When it is not in use it stores upright out of the way. It's lowered and raised by an "air-over-oil" hydraulic system from power supplied by the air system which is standard on many docks.

The AERO-BOARD "kit" —ready to install—is ONLY **\$410**

Write for complete specifications and name of nearest dealer. Sold and Serviced by Leading Materials Handling Equipment Distributors.

DEALER INQUIRIES
INVITED

Mfd. by **FREIGHTLINER CORPORATION** Dept. 7N, Box 3591
Portland 8, Ore.

Circle 72 on Reader Service Card



JAKES



SANITARY STAINLESS STEEL DECK

for
**MEAT HANDLING
DAIRY OPERATING
FOOD PROCESSING**



Model 50

- One-piece overlapping stainless steel deck.
- Rounded corners for safety.
- Wheels and caster bearings sealed against dirt.

WRITE FOR INFORMATION

JAKES FOUNDRY COMPANY

Established 1891

2800 Charlotte Avenue

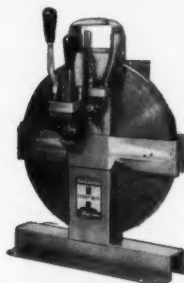
Nashville 9, Tennessee

Circle 100 on Reader Service Card

MATERIAL HANDLING ENGINEERING

(Advertisement)

NEW PRODUCTS



COMBINATION STRAPPING UNIT

Model 00-140—A money-saving strapping "package" including stretcher cutter and dispenser at a low-cost package price, is now available. Write: A. J. Gerrard, 402 East Touhy Avenue, Des Plaines, Illinois.

Circle 21 on Reader Service Card

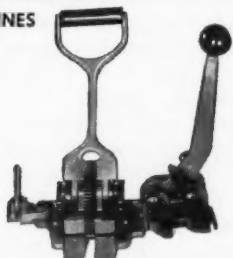
STRETCHER and SEALER



Versatile stretcher for strapping boxes, cartons and bundling of compressible objects. Also, easy to operate sealer for use with $\frac{3}{8}$ " strap-binder seals. Write: A. J. Gerrard, 402 East Touhy Avenue, Des Plaines, Illinois.

Circle 22 on Reader Service Card

OVAL STRAPPING MACHINES



Model 2822—is available in several sizes and styles to meet practically every industrial requirement. Write: A. J. Gerrard, 402 East Touhy Avenue, Des Plaines, Illinois.

Circle 23 on Reader Service Card

STRAP AND WIRE CUTTER



Model 503—Dual purpose cutter—cuts oval strapping, up to $\frac{3}{4}$ " wide flat strap, as well as 14 gauge and finer round wire. A valuable tool that pays-for-itself in any receiving or shipping department. Write: A. J. Gerrard, 402 East Touhy Avenue, Des Plaines, Illinois.

Circle No. 24 on Reader Service Card

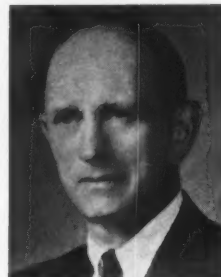
JULY, 1960

MEN IN THE NEWS

Industrial Publishing Elects New Officers



Lester P. Aurbach



Edwin M. Joseph

Lester P. Aurbach has been elected president and Edwin M. Joseph executive vice president of MATERIAL HANDLING ENGINEERING's publisher, The Industrial Publishing Corporation. Aurbach, until now executive vice president of our 30-year old company, recently celebrated his 25th anniversary with the firm. He succeeds Irving B. Hexter who died recently. Aurbach joined The Industrial Publishing Corporation in 1935, was appointed vice president three years later, executive vice president in 1952.

Joseph joined the company in 1945 as general manager of *Occupational Hazards* magazine. He was named a vice president in 1952 and first vice president in 1959.

Clark Equipment Co. . . . has elected two vice presidents: H. D. Nelson, comptroller, and Bert E. Phillips, general manager of the Industrial Truck Division. Nelson joined Clark in 1946 from Price Waterhouse & Co. where he was chief accountant. Phillips started as a salesman for a Clark dealer, later became a staff salesman.



Nelson



Phillips

The Yale & Towne Mfg. Co. . . . congratulates Timothy F. Moriarty who retired after 50 years in the material handling field. He was hand truck sales manager for the Yale Materials Handling Division.

Whiting Corp. . . . has named George F. Lytle manager of its newly-formed Pressuregrip Division. He developed a new vacuum lifting system which will be sold through the division.



A. J. Gerrard & Co. . . . appointed Joseph E. Senesac Jr. manager of advertising and sales promotion. He was sales promotion manager of Admiral Corp.'s electronics division, had been advertising director of Mystik Adhesive Products Co. Gerrard makes steel strapping and strapping equipment.



Greer Hydraulics Inc. . . . has named Donald K. Marsh general sales manager. He has had

MEN IN THE NEWS

continued

26 years in the sales, field and product engineering fields. Greer also appointed **Leonard H. Seeman** sales manager of the Products Division.

The Elwell-Parker Electric Co. . . has appointed **Peter**



Roberts



Towson

Roberts advertising manager. He will direct advertising, publicity, public relations, and sales promotion. Roberts joined the Publi-

cations Department in 1952.

The company also named **Sheldon K. Towson Jr.** as general manager. He is a vice president of the company.

Clark Equipment Co. . . congratulates **Elmer J. Dunham** who has retired after 31 years with the firm. Dunham generally is



Dunham



Van Dwyne

credited with designing the first mass produced industrial fork lift truck. He will continue to serve Clark as a consultant.

In other news, Clark's Industrial Truck Division has established three regional sales areas,



Blake



Beicher

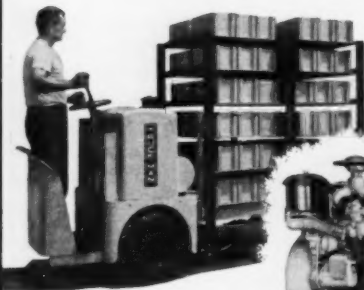
headed by three regional managers. They are **Philip Van Dwyne Jr.**, Eastern Region, based in New York City; **J. R. Blake**, Midwestern Region, based in Chicago, and **J. I. Beicher**, Western Region, based in San Francisco. The nine district managers will report to their respective regional managers instead of the division headquarters in Battle Creek.

The Barry Hyman Co. . . appointed **Nathaniel Warshaw** vice president. He is licensed profes-



sional engineer, holds patents in material handling. Warshaw formerly directed research and development for the American Pulley Co. The Hyman company distributes and engineers material handling equipment.

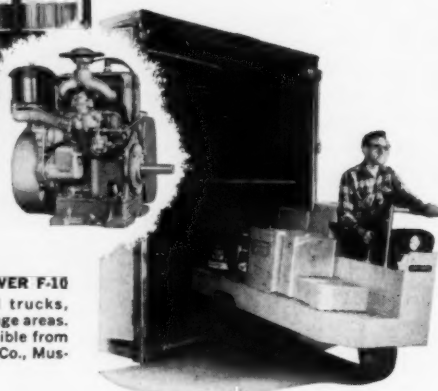
Keep loads rolling along with **WISCONSIN-POWERED** materials handling equipment



TRUCK-MAN "75" — made by The Knickerbocker Co., Jackson, Mich. — has a load capacity of 7500 lbs. It is powered by a 18-hp Model THD Wisconsin Engine.

PRIME-MOVER F-10

flits into and out of crowded trucks, freight elevators, cars, and storage areas. Its 18 sq. ft. load area is accessible from all sides. Made by Prime-Mover Co., Muscatine, Iowa.



Rolling loads gather no excess costs. And to keep 'em rolling, most builders of mechanized materials handling equipment rely on Wisconsin air-cooled Engines to power the machines you buy.

Wisconsin Engines are *custom-engineered* to fit both the machine and the job. You get precision-fitted construction for smooth-firing power and minimum wear — and reserve load-lugging stamina that protects the engine against stalling under sudden shock loads.

An air-cooled Wisconsin has up to 26 fewer parts than its water-

cooled counterpart—and packs the same power in a smaller and up to one-third lighter engine. All this adds up to easier maneuverability in tight places, and substantial savings in servicing and parts replacement.

If you want dependable speed and muscle for handling materials, specify Wisconsin Engines on the equipment you buy. Sizes 3 to 56 hp — single-, two-, and V-type four-cylinder models. Available with electric starting — and your choice of fuel system, including cleaner-burning LPG for safer indoor use. Get Bul. S-249. Write Dept. M-10.



WISCONSIN MOTOR CORPORATION

MILWAUKEE 46, WISCONSIN

World's Largest Builders of Heavy-Duty Air-Cooled Engines

M-122

Circle 172 on Reader Service Card

The American MonoRail Co. . . . has appointed Charles E. Lutzky Midwest Division sales manager of the Conveyor Division. He has specialized as a material handling sales engineer. He will locate in the Chicago office.



Lutzky

United States Rubber Co. . . . lists Thomas B. Applewhite manager of conveyor products sales. He was assistant manager of the Conveyor Products Department.

Stokvis-Muliton Corp. . . . has elected Eric Rice vice president in charge of the Materials Handling Division. He was sales manager of the company.



Rice

The firm also appointed Eric Schmidt Midwestern regional sales manager. He will locate in Chicago.

Wiretyer Corp. . . . has appointed Harold L. Colombo sales manager. He was sales manager of the Engineered Handling Systems Division. Colombo will continue to supervise sales activities for the division as well as the entire company.



HEAVY DUTY YARD AND FACTORY TRAILERS

INDUSTRIAL CARS AND TURNTABLES

CAPACITIES FROM 2 TO 600 TONS

CUSTOM
46
YEARS OF
SERVICE TO
HEAVY
INDUSTRY

CROSS-BAY® MOTOR-DRIVEN CARS

**DESIGNED
AND BUILT FOR
LASTING SERVICE**

For information on trailers CATALOG B
and for industrial cars CATALOG C

EASTON

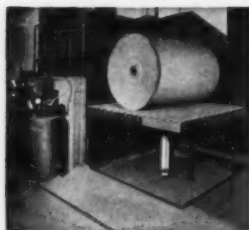
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Circle 62 on Reader Service Card

SPEED MATERIAL HANDLING with **JOYCE** HYDRAULIC...

...MATERIAL LIFTS



*save floor space...
save manpower*

Joyce single or multiple post "Materiallifts" will be engineered to fit your requirements as to size and type of platform, lifting capacity and type of controls. Available with air-oil or electric pumping unit operation . . . always locked on oil for greatest safety.

...VARI-RAMPS



*simple to install...
economical to operate*

These compact units feature roll-over capacities to suit. Available in two types . . . electric pumping unit and air-oil operated . . . push button, hand or foot valve control . . . automatic leveling. Joyce "Vari-Ramps" are manufactured with platform sizes and vertical movements to your specific requirements.

...CROSS-OVER BRIDGES



*custom built to meet
your requirements*

Joyce cross-over bridges are available in the following styles, Bascule type, Vertical rise type and Horizontal rotating type. They are available with platforms of shape, size and capacity to meet your requirements . . . full hydraulic air-oil or electric pumping unit operation . . . push button, hand or foot valve control.

Also manufacturers of a complete line of Elevator Components, Hydraulic Feed Tables, Factory Truck Lifts and Industrial Jacks. Suppliers of heavy duty lifting equipment to world industry since 1873!



**WRITE TODAY FOR
COMPLETE INFORMATION!**

IN CANADA: Midland Foundry
& Machine Co., Ltd., Midland, Ontario

THE JOYCE-CRIDLAND CO.
DAYTON 3, OHIO

Circle 102 on Reader Service Card

NOW-A Hand Pallet Truck That's Truly **HAND** OPERATED



**New
WRIGHT LIFT***
WITH THE
**EXCLUSIVE
HLC (Hand Lowering Control)**

*PAT. PENDING



"Two Feet on the Floor"
Operation at all times.

● **Faster, Easier Operation** - Operator does not have to stop, balance himself on one foot and lower or lift load with other foot. Load can be raised or lowered while truck is in motion. A simple squeeze of the exclusive HLC Hand Lowering Control lowers load easily, quickly! Lifting is done by pumping handle.

● **Load Protection** - A variable lowering rate (operator-controlled) allows gentle lowering of fragile loads and rapid lowering of other loads. HLC offers uniform control regardless of handle position.

● **Safe Operation** - Load may be lowered while unit is in motion to act as a brake, or dropped to avoid collision, "run-aways", or pinning operator.

OTHER FEATURES: Cast Pump - machined oil passages; overload, overflow valves; magnetic oil filter; honed cylinders; hard chrome-plated pistons. Horizontal Pump Piston - cannot trap air. Articulated Steering Wheels. Rolled Steel Forks. Pallet Entry and Exit Rollers, etc.

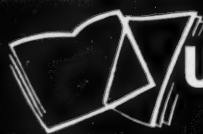
The Wright Lift is available in 2,000 lb. cap. at \$395 - 4,000 lb. cap. at \$475 - 6,000 lb. cap. also available. For full information or the convincing proof of a Free Demonstration, write today.

WRIGHT-HIBBARD Industrial Truck Co.

DIVISION OF *Jonard* INDUSTRIES, INC.

Hamburg, Pennsylvania

Circle 173 on Reader Service Card
MATERIAL HANDLING ENGINEERING



USEFUL LITERATURE

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2,500 Lb. Capacity Electric Fork Truck

Bulletin SS-2215 gives dimensional and engineering specifications, and operating advantages of the Clarklift EC-25. It's available with fork heights up to 130 inches for high tiering. Special emphasis is placed on the accessible contactor panel, carbon pile resistor for smooth acceleration, dual field drive motor, nested roller upright, and self-adjusting brakes.

Clark Equipment Co.

Circle 400 on Reader Service Card

2-Way Mobile Radio Base Station Equipment

Complete descriptions of all equipment available from Motorola are given in this catalog. It contains specifications and photographs of upright cabinets, remote control and desk top consoles, and special AC utility base stations. Several pages are devoted to descriptions of the various base station antennas, monitor receivers, and the company's Quik Call selective signalling system.

Motorola Inc.

Circle 401 on Reader Service Card

Hydraulic Crane Catalog

Grove hydraulic cranes are designed, built, and tested to deliver maximum capacity and performance at a low operating, maintenance, and initial cost. They're engineered to carry a basic capacity load with the boom fully lowered. Precision hydraulic controls permit the safe handling of delicate machinery as well as heavy, rugged loads. Bulletin also gives special attachments.

Grove Mfg. Co.

Circle 402 on Reader Service Card

Do You Have Rolling Steel Doors In Your Plant?

If so, your maintenance man may find this publication a valuable asset. Actually, a 16-page maintenance and parts manual for Mahon's doors, it helps speed ordering of replacement parts. It assists in identifying parts and details what specific part information is needed to get prompt shipment. Manual illustrates all door components, as well as mechanical and power operators, to make identification and specification easy.

The R. C. Mahon Co.

Circle 403 on Reader Service Card

Rope And Sling Saving Information

A handbook on wire rope and slings. 28-page book uses cartoon caricatures to illustrate the abuses and correct uses. Add to their service life by finding out the correct way to use them.

Union Wire Rope Corp.

Circle 404 on Reader Service Card

Packaging Dimension Lumber

Ideas-In-Action Report S3-5 describes the method used by Cheney Forest Products, Inc. to package dimension lumber with steel strapping. Report says the method has reduced car-loading time. Where two men required four hours to hand load studs into a box car, one man loads the steel strapped packages with a lift truck in 45 minutes.

Acme Steel Co.

Circle 405 on Reader Service Card

Need Large Panels?

Now you can specify them in widths up to 8 feet and lengths 16 feet and longer. Ply-Veneer is a lightweight, low-cost panel stock of kraft overlaid distended fir veneer. Folder describes varied industrial uses with emphasis on industrial packaging. You can also order cut-to-size stock in minimum sizes as small as one square foot in area.

*Silvatek Products Division
Weyerhaeuser Timber Co.*

Circle 406 on Reader Service Card

Heavy Steel Frame Sifters

Bulletin G-260 describes the complete line of Robinson Cyro Sifters. Units are furnished with single or multiple sieves to make two, three, or four separations. The improved double balanced drive eliminates vibration.

*Robinson Division
The Young Machinery Co., Inc.*

Circle 407 on Reader Service Card

"Selection And Use Of Pneumatic Conveyors"

An 8-page report. Fourteen photographs and diagrams are used to illustrate the text. A listing of material which can be handled pneumatically is included. Capsule history of the last 100 years of pneumatic conveying is

USEFUL LITERATURE

continued

also given. Also discussed are where to use pneumatic systems, what their advantages are, and the relative costs for investment, power, and mechanical maintenance.

Fuller Company

Circle 408 on Reader Service Card

Pushbutton Unloading

Advantages of A-C's 3½-ton car shaker for fast, safe, pushbutton unloading of granular material from

open, hopper bottom gondola cars are described in this leaflet 26B9438. The 3½ ton shaker is specifically designed for plants where unloading of hopper-bottom cars does not warrant installation of A-C's 5-ton unit and where smaller capital investment is desirable.

Allis-Chalmers Mfg. Co.

Circle 409 on Reader Service Card

Lightweight Lifting Magnets

Designed specifically for scrap handling. New series of heavy-duty magnets is available in 36, 39, 45, 55, and 66 inch diameters. They feature

lighter aluminum field coils and all-welded, water-tight construction. Bulletin 3021 gives complete data and specifications.

Stearns Magnetic Products

Circle 410 on Reader Service Card

Steel Storage Equipment

Bulletin DC-60 presents the Penco line of phosphatized steel storage equipment. Catalog describes and illustrates angle shelving, T-line shelving, steel lockers, book case shelving, steel cabinets, wire basket storage units, and service truck shelving. A table lists dimensions.

*Penco Division
Alan Wood Steel Co.*

Circle 411 on Reader Service Card

Combination Engineering Analysis Forms

The 4-page Engineering Analysis Form 421-1 asks the questions that will provide the true handling and specification data necessary for the complete picture of your dock operation. It will help you select the proper material handling equipment for your needs. The 8-page One Man Crew Analysis #153 describes a system where each employee works alone as a checker-stripper and loader for increased productivity and more flexible operation.

Lewis-Shepard Products, Inc.

Circle 412 on Reader Service Card

Install Right And Save

Suggestions for the Selection, Installation, and Maintenance of Motor Truck Scales is one of the latest pamphlets prepared by the Scale Manufacturers Association, Inc. SMA says a good installation gives you 4 major benefits. 1. Protects your pocketbook. 2. Builds good will and confidence. 3. Reduces maintenance costs. 4. Helps assure legal approval.

Scale Manufacturers Association, Inc.

Circle 413 on Reader Service Card

Vacuunized Sweeper

Tennant Model 100 Vacuumized sweeper is detailed in a 6-page bulletin. This large capacity machine sweeps a 7'4" path, has a powerful vacuum system, yet is surprisingly compact and easy-to-operate. Bulletin outlines advantages, shows step-by-step operation, pictures typical users.

G. H. Tennant Co.

Circle 414 on Reader Service Card

"For Cleaner Safer Air"

Title of a four-page folder that gives technical characteristics and typical elimination data for three types of catalytic purifiers. Literature states that the OCM Catalytic Exhaust Puri-



Portable
TIER-RACK

Makes Him
A QUICK-CHANGE ARTIST

...He Alters Your Layout in Minutes

Reach solid-stowed or high-tiered items in a few quick moves... change your storage setup in a hurry... with portable TIER-RACK pallet stacking frames.

Aisles are costly! Cut yours to a minimum with the TIER-RACK system and use this space for additional storage.

Two identical steel tubular frames snap onto your regular pallet in seconds, converting it to a rack capable of supporting tons of weight.





Tier-Rack's a snap to assemble.



Send for free Brochure M-6 today.

TIER-RACK CORPORATION

122 North 7th Street • St. Louis 1, Missouri

CHestnut 1-5451

Circle 159 on Reader Service Card

TERN HOISTS

Guaranteed Performers

... at Lower Cost!



DIFFERENTIAL HOISTS

Lightweight, durable, smooth working. Available in "Royal" and "Ekon" models. Factory tested at twice rated capacity.

Model 331G
1/2 Ton\$26.15
Model 333G
1 Ton\$40.95



Ideal in limited quarters. Easy portability makes this an excellent utility hoist for lifting, pulling, tightening.

Model 20P
1/2 Ton\$42.50
Model 30P
3/4 Ton\$55.25

GUARANTEE—All Tern hoists are factory tested at twice rated capacity and are fully guaranteed.



Write for catalog on full line of portable hoists and shop cranes.

TERN MACHINE CO.

3762 West 4th St.

Winona, Minn.



NEW TERN SPUR GEAR HOIST

High strength, light weight aluminum alloy casing. Fully enclosed parts - precision load control. Sizes up to 10-ton capacity.

1/2 Ton Size\$125.00
1-Ton Size\$158.00



FREE Booklet gives valuable details on Signode

air power tensioners and sealers

This new Signode booklet tells how to save time and effort and do a better, more uniform job of steel strapping. It describes many of the ways in which air power strapping tools are serving industry. It gives useful data and descriptions of Signode's complete line of air power tensioners and sealers. Send for your free copy today.



SIGNODE STEEL STRAPPING CO.

2618 N. Western Avenue, Chicago 47, Illinois
Offices Coast to Coast

Foreign Subsidiaries and Distributors World-Wide

In Canada: Canadian Steel Strapping Co., Ltd., Montreal • Toronto



OPEN ANY FREIGHT CAR DOOR IN 20 SECONDS OR LESS with the



ONE-MAN CAR DOOR OPENER

Write for complete details and railway products catalog

ONLY **\$4500**

F.O.B. Bowerston

The Nolan Co., 110 Pennsylvania St., Bowerston, Ohio

Circle 126 on Reader Service Card

JULY, 1960



Electronically DISPENSED GUMMED TAPE AT YOUR FINGERTIP

This machine is designed to deliver from 9" to 60" of 2 1/2" to 3" tape at a rate of 40" per second entirely by electronic control. Hardened self-sharpening tool steel shears will cut kraft or reinforced tape without adjustment. Operates on 110V, 60 cycle A. C. Plastic water bottle, thermostatically controlled heater, dual moistening brushes, foot switch, and printing attachments.



For further information write

DIAGRAPH-BRADLEY INDUSTRIES Inc.

P. O. BOX 269

HERRIN, ILLINOIS

DISTRIBUTORS IN ALL PRINCIPAL CITIES



Circle 59 on Reader Service Card

USEFUL LITERATURE

continued

fier eliminates 95 percent or more of carbon monoxide and over 80 percent of other objectionable exhaust elements. The OCM Dieseler, when operating at 60 percent load or better, eliminates 60 to 85 percent of the carbon monoxide and odor normally associated with diesel fumes. The Oxy-Muffler will clean up 60 to 90 percent of carbon monoxide, aldehydes, and odors.

Oxy-Catalyst, Inc.

Circle 415 on Reader Service Card

Long-lasting Wooden Pallets

Called Super-Strip Pallets, a special steel strapping runs through sawn kerfs in ends of all top and bottom deck boards. It's securely held by drive screw nails. Company says this more than doubles pallet life.

Signode Steel Strapping Co.

Circle 416 on Reader Service Card

Slide Film On Electric Powered Trucks

"Something New—Something Better" is a 20 minute sound and color slide film. It illustrates design features

and user benefits of Clark's 2,000 lb capacity electric-powered fork truck. It explains stepless speed control made possible by carbon pile resistor. Available for showing.

*Industrial Truck Division
Clark Equipment Co.*

Circle 417 on Reader Service Card

Engineered To Meet Your Needs

A wide variety of P-S plant and warehouse handling equipment is standardized in dimension, capacity, and price. Catalog includes stacking storage bins with a 4-way lift truck entrance, automatic dump boxes with gravity latch lock, and automatic side dump trailer trucks. Company builds special sizes and capacities to customer specifications.

Palmer-Shile Co.

Circle 418 on Reader Service Card

Low Cost 2-Strip Sealing

Brochure details cost factors such as labor, material and equipment. It also discusses quality factors such as strength of closure, safety from pilferage, carton reuseability, completeness of closure, and ease of openings. Results of actual testing conducted by an independent testing authority are given and evaluated.

*Mid-States Gummed Paper Division
Minnesota Mining & Mfg. Co.*

Circle 419 on Reader Service Card

Hoist Specifications

"HMA-300 Standard Specifications for Manually Lever Operated Chain Hoists" is a six page booklet. It contains tables and recommended minimum standards on lever operated type hoists of ratchet and pawl design, and load brake design using roller or link coil chain. This is the third of a series of four hoist specifications.

Hoist Manufacturers Association, Inc.

Circle 420 on Reader Service Card

Die Handling Industrial Trucks

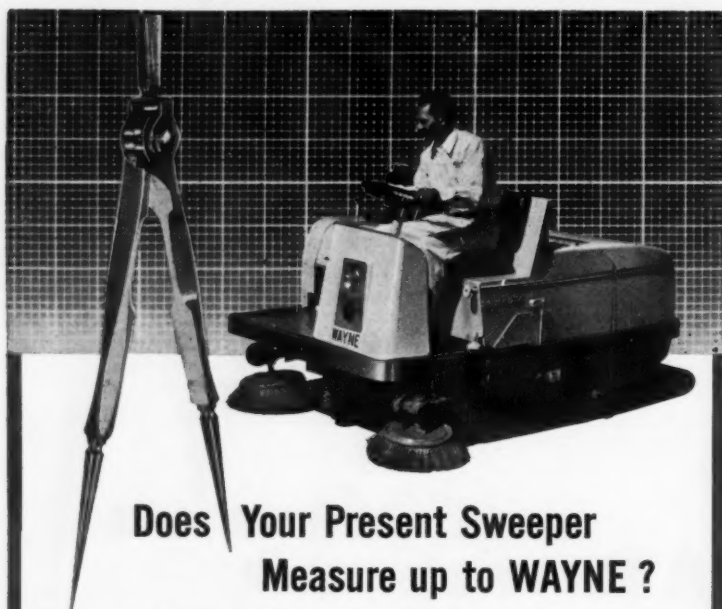
Folder gives complete data on company's line of industrial trucks for die handling. Gives full specifications for all Elpar models, available in capacities from 6,000 to 120,000 lb. Platform specifications, truck heights, weight and turning space are charted. Outstanding operator vision, convenient remote control panels, and special heavy-duty drive units are features that are illustrated.

The Elwell-Parker Electric Co.

Circle 421 on Reader Service Card

"The New Work Styled D6"

Title of a 12-page booklet that presents features of the D6 Series B Tractor. Features include a new diesel



Does Your Present Sweeper Measure up to WAYNE?

If you are using old-fashioned sweeping methods, look at the money-saving advantages of *modern Wayne Power Sweeping*...

- One man and a Wayne can sweep up to 60,000 square feet of plant area *per hour*.
- There are no dust bags to empty. Dust is handled automatically by Wayne's exclusive Filter-Vac system.
- A Wayne sweeps more area because it has the largest *usable* hopper capacity of any sweeper.
- Quick broom changes let you match the broom to the work—get *all* plant areas super-clean.

Then add: better visibility, ample power, automotive controls, hydraulic dumping—all of which put Wayne head and shoulders above the rest for plant maintenance, inside and out, *the modern way*. Get a *Modern Power Sweeper—Wayne!*

Write for literature



WAYNE Manufacturing Co.
2320 East Lexington Avenue
Pomona, California

Send me a copy of your Power Sweeper brochure

Name _____

Attach to company letterhead and mail

Circle 168 on Reader Service Card

engine rated at 93 flywheel horsepower with 25% more lugging ability. Also described are a new dry-type air cleaner, the exclusive Cat oil clutch, and lifetime lubricated track rollers and idlers. Form 33611 includes specifications, and attachments and tools for logging, agriculture, and other applications.

Caterpillar Tractor Co.

Circle 422 on Reader Service Card

Overhead Trolley Cable Conveyor

The Streamliner is smooth running, easy to install, and easy to maintain. Bulletin C-60 details the new Ferguson overhead trolley cable conveyor. Features include improved segmented sheaves in the drive units and idler turns and specially designed driving lugs. Company says interchangeable stock assemblies plus available accessories permit the installation of its custom-designed cable conveyor system to the user's special requirements at minimum cost.

Harry J. Ferguson Co.

Circle 423 on Reader Service Card

Magnetic Contactors And Starters

Bulletin GEA-7020 covers NEMA Sizes 0-5. Information on these contactors and starters includes combination, reversing and two-speed forms, and modification kits that are available. Illustrated bulletin gives application, installation and maintenance information, along with discussion of product features.

General Electric Co.

Circle 424 on Reader Service Card

Electric Log Loaders In Operation

Four-page folder includes actual job reports that describe log loaders in action. One described is the Series R, a 30-ton capacity machine, and the other is the Series RT, equipped with tongs. Features: ability to maneuver in tight places, and electric powered outriggers.

R. G. LeTourneau, Inc.

Circle 425 on Reader Service Card

Inexpensive Tape Sealing

Standard-Knapp Model M-10 Tape-Line system for tape sealing new or multi-use corrugated cases is described in a 4-page folder. It is designed for installation on standard types of case gluers. It handles up to 30 cartons a minute, depending on case and product requirements. It can be adjusted to handle various sized cartons in seconds.

*Portland Division
Emhart Mfg. Co.*

Circle 426 on Reader Service Card

Built for rugged service...

2 NEW lightweight floor trucks

Here are 2 new trucks that feature corrosion-free properties plus strength without weight . . . up to 40% lighter than steel. This permits use in almost any industry plus larger loads and more trips with less energy, less manpower.

Nutting Structo-Lite Trucks are made of heat treated aluminum alloy, the same type used for heavy duty structures . . . non-sparking for safety where explosive material is used, non-toxic and resistant to attack by food and unaffected by most chemicals, and many acids and alkalis. Exclusive Nutting unitized frame construction holds proper alignment throughout unusual loads and abuse. New 3 bearing "friction-free" casters for easiest possible maneuvering.



Nutting Fiberglass Box Trucks weigh as little as 70 lbs. (steel trucks of the same size, 120 lbs.) Chrome impregnated fiberglass is impervious to steam, oil and mild acids and alkalis — won't crack or corrode — withstands temperatures from -40°F to 212°F, even up to 250°F for short exposures. Smooth inside with rounded corners for easy cleaning.

These light, but extra rugged trucks are designed to increase your handling efficiency and to save you money — based on lighter weight, longer life, reduced maintenance and less downtime. For full information send the coupon today.

TRUCK AND CASTER CO.

102 Division Street • Faribault, Minnesota

☐ Send Structo-Lite aluminum truck literature

☐ Send fiberglass truck literature

NAME

COMPANY NAME

ADDRESS

CITY STATE

Circle 127 on Reader Service Card

USEFUL LITERATURE

continued

Fast, Efficient Dock Loading

Brochure provides engineering data and charts for specifying Magnesium dockboards and ramps to fit all rail and truck uses. Included are detailed instructions for determining axle capacity, width and allowances, crown or bend degrees, underclearances, locking range, park-out dimensions, height, differentials, span sizes, etc. Standard and job-engineered adapta-

tions, including cross-over ramps, are illustrated.

Magnesium Products of Milwaukee
Circle 427 on Reader Service Card

First-In Is First-Out In Storage Racks

Data on storing packages in an easily accessible first-in first-out sequence. Free rolling ball bearing wheels support packages in rows. Versarack operates on the gravity flow principle. Space is saved by use of the cube principle permitting stor-

age of material in an almost solid mass from floor to ceiling.

M-H Standard Co.
Circle 428 on Reader Service Card

Boltless Steel Shelving And Accessories Shown

Fast installation, easy rearrangement and durability are claimed for the channel clip used in "T" Line boltless shelving. It's shown in an 8-page B-40 bulletin. All shelves assemble with these precision formed channel clips. The accessories section shows a wide range of custom storage facilities.

Penco Division, Alan Wood Steel Co.
Circle 429 on Reader Service Card

Any Size Turntable

Typical turntable installations are shown in Catalog 15. How they are engineered with efficient mechanical and electrical designs that are simple and economical to operate is described. Vehicle positioning, material handling, product display, theatrical motion are just a few.

Macton Machinery Co., Inc.
Circle 430 on Reader Service Card

Unit For Parts That Roll

Bulletin No. 573 covers a high-capacity storage unit for parts that roll. The equipment includes a parts elevator and retaining tracks to store up to 3000 parts. Photographs describe the equipment. Also included are specifications, capacities and a description of the unit's operation.

Michigan Tool Co.
Circle 431 on Reader Service Card

Engineered Overhead Handling

Bulletin C-2 is an idea book. In 56-pages it features engineered overhead handling systems of track, cranes, trolley, switches, as well as monotractors and auxiliary equipment. Covers Railmaster (heavy duty) and Standard (light duty) monorail systems with data and illustrations.

American MonoRail Co.
Circle 432 on Reader Service Card

Portable Elevator Guide

A 20-page booklet "The Portable Elevator for Vertical Material Handling" presents exactly what the portable elevator is and illustrates its advantages and applications for vertical material handling. The 92 year history of portable elevators is presented.

*Association of Lift Truck
and Portable Elevator Mfgs.*
Circle 433 on Reader Service Card

Stencils from Punch Tape

"Stencilmation" is a way of cutting stencils without an operator,

Only **B & P** MAGNESIUM DOCKBOARDS have all these advantages

EXCLUSIVE RUGGED FORGED ENDS ON ONE-PIECE CURB

FULL LENGTH HAND-GRIP FOR SAFE FAST HANDLING

YELLOW SAFETY LANE MARKINGS ON ALL BOARDS

HEAT TREATMENT AFTER WELDING FOR LONGER LIFE

- AND MANY OTHER IMPORTANT CONSTRUCTION FEATURES THAT WILL HELP CUT YOUR LOADING DOCK COSTS!

Compare the B & P Dockboard features before you place your next order. Write today for the fact-packed B & P Dockboard folder!

60-MH-2



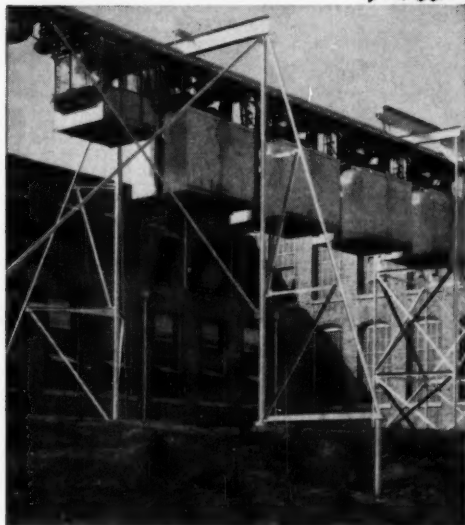
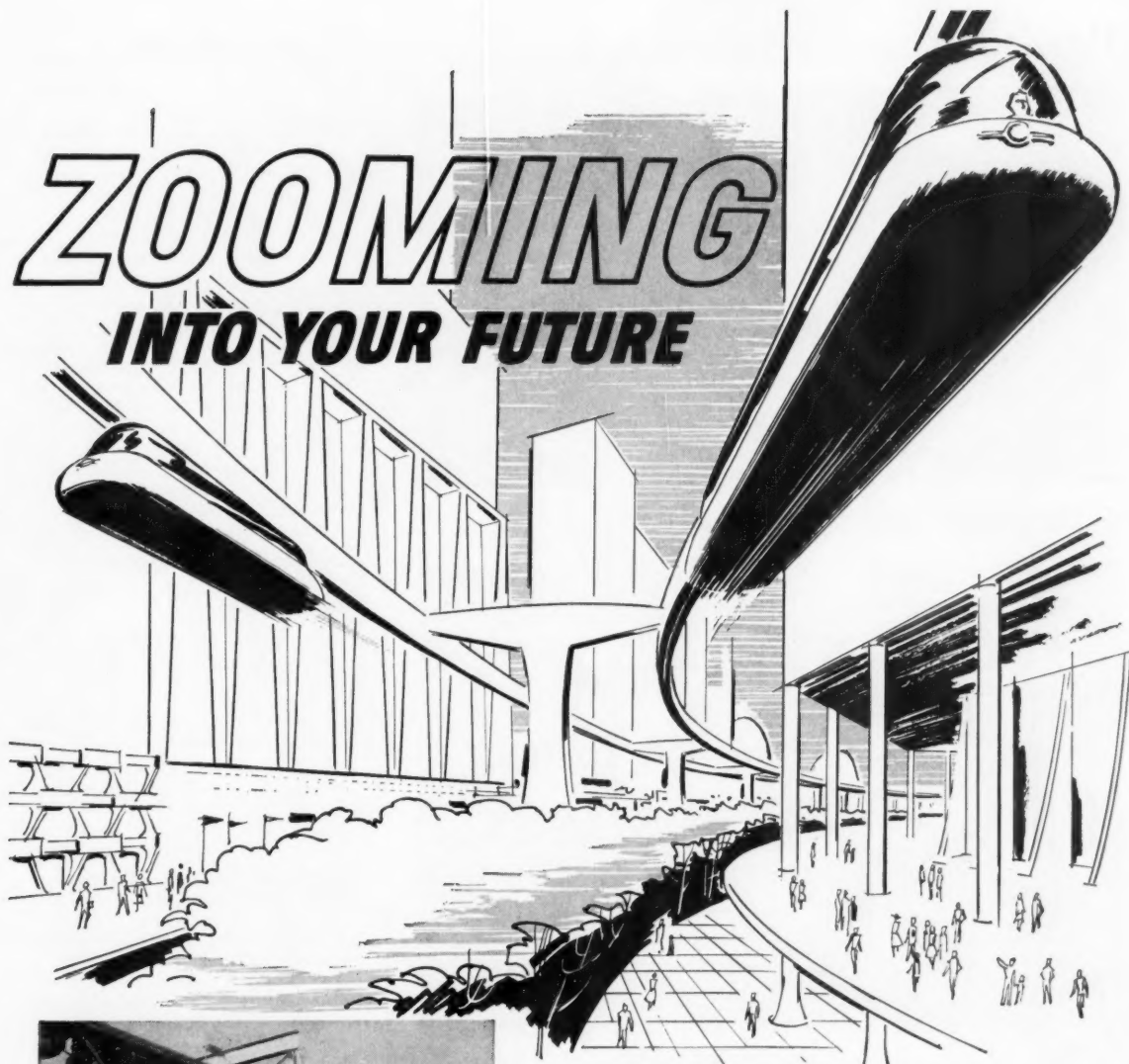
BROOKS & PERKINS, Inc.

1938 WEST FORT STREET • DETROIT 16, MICHIGAN

AMERICA'S LARGEST MANUFACTURER OF MAGNESIUM ASSEMBLIES

Circle 28 on Reader Service Card

ZOOMING INTO YOUR FUTURE



Public transport borrows ideas from American MonoRail

Someday you may ride to work this way because public transport officials borrow from efficient handling methods developed by American MonoRail engineers. For over thirty years all kinds of materials have moved on monorail tracks in nearly every industry—and beginning with hand pushed carriers, today's developments include systems that are completely automatic from pick-up to deposit. Heavy—bulky—hard to handle loads travel quickly, safely and directly to their destination—through the air. Only the research and experience of American MonoRail engineers make this equipment possible. Write for Bulletin C-2.



ENGINEERED MATERIALS HANDLING

1129 EAST 200th STREET CLEVELAND 17, OHIO

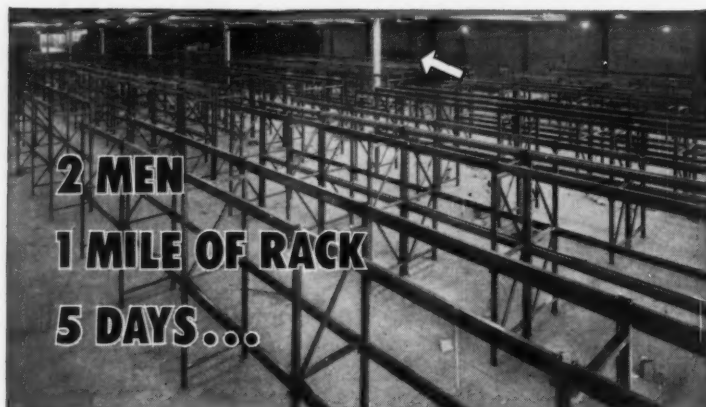


AMERICAN MONORAIL

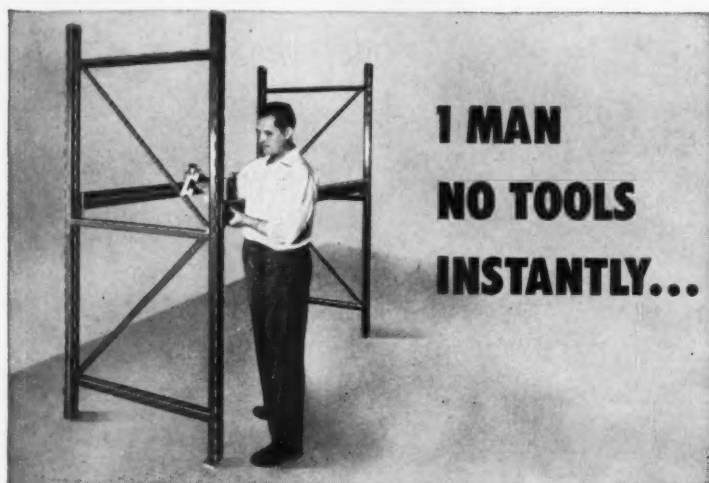
DIVISIONS: Conveyor Division, Tipp City, Ohio—Canadian Monorail Co., Ltd., Galt, Ont.

Circle 7 on Reader Service Card

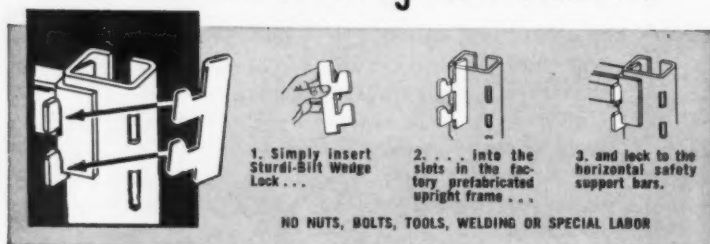
How's this for fast assembly?



...and for adjustability?



...it's done with **Sturdi-Bilt**
"Float Wedge Construction"



RACKS FOR EVERY STORAGE NEED

Send for NEW catalog.



U.S. Patent Nos. 2706650, 2813139

Attach this coupon to your letterhead or write:
STURDI-BILT Dept. MHE-70
Material Handling Division
Union Asbestos and Rubber Company
332 S. Michigan Ave., Chicago 4, Illinois

Circle 157 on Reader Service Card

USEFUL LITERATURE

continued

from punch tape, as a by-product of your office billing system. Ask for the bulletin describing how it works. The system can save you time and money in addressing packages.

Marsh Stencil Machine Co.

Circle 434 on Reader Service Card

Low Cost Workpower

Catalog CR-745-1 details the International TD-6 crawler tractor. The TD-6, with 42.3 drawbar horsepower, has a five-roller track frame. A four-roller is optional. Push button, direct starting activates the six-cylinder, 52 net horsepower diesel engine. Track rollers require lubrication only every 500 hours.

International Harvester Co.

Circle 435 on Reader Service Card

Truck Crane

Safe loadlifts up to 35 tons with a 40 foot boom, on or off the pavement, and top travel speed of 26.5 m.p.h. are the high lift capacity and travel speed emphasized in the new Koehring 435 truck crane bulletin. Full data can be obtained.

*Koehring Division,
Koehring Company*

Circle 436 on Reader Service Card

Galvanized Slip-On Fittings Make Racks From Pipe

With its 58 varieties of Kee Klamp slip-on fittings and ordinary pipe, this company says you can build a structure of any shape and size . . . to fit any space condition for any load capacity. Kee Klamp fittings are strong malleable iron made for pipe sizes 3/8 to 2 inches. Company asks you to write for Bulletin K-597.

Kee Klamps North America Limited

Circle 437 on Reader Service Card

Automatic Package Tying Machines

What a tying machine does, how it operates, and the advantages of automatic tying are covered in Brochure No. 200. Actual thumbnail histories are included. Examples of twine tying are chosen from many fields. Types of wraps possible with the Bunn machine are also explained, along with suggested applications.

B. H. Bunn Co.

Circle 438 on Reader Service Card


Who Makes Your Containers

Do it yourself, says the Colt brochure just published. It tells the cost-saving advantages of making corrugated packing and shipping containers in your own plant.

Colt Packaging Machinery Co.

Circle 439 on Reader Service Card

MATERIAL HANDLING ENGINEERING



Jerk this hoist hook...
turn it upside down... in
every accidental hoisting condition,
loads are locked-in, protecting men
and materials. This radically different
Bullard **Tip-lock** safety hoist hook, is
so rugged and simple it will operate for
years with practically no maintenance...
yet the **Tip-lock** hook is made with such
precision a touch of the finger will open
the gate leaving the hook's throat 100% clear.

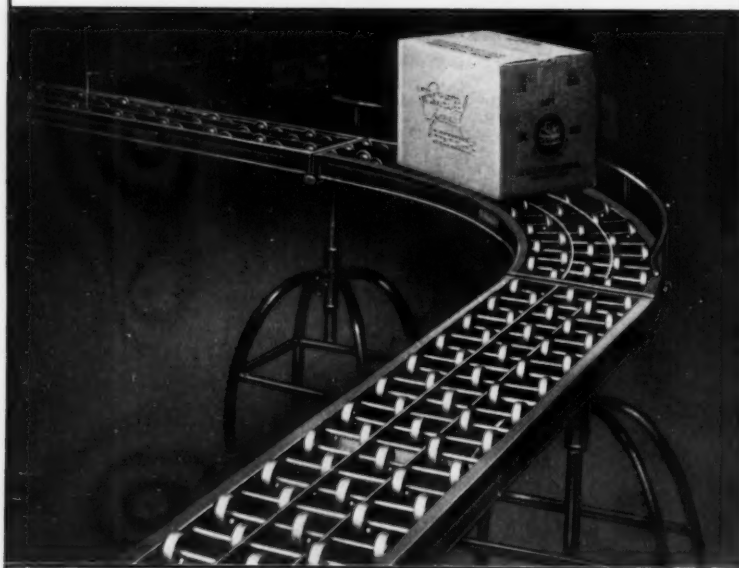
Write for New Bullard Tip-lock safety hoist hook data sheet



Circle 29 on Reader Service Card

COPYRIGHT 1960, E. D. BULLARD COMPANY

**As Dependable as the Gravity
that Runs them ...
and just that Inexpensive!
BUSCHMAN STANDARDIZED
PORTABLE CONVEYORS**



The money they save far exceeds the low cost of Buschman wheel, roller and belt portables. You find them everywhere, in plants large and small. Each type preferred for its patented features. Standard stocked sizes may be obtained from Buschman representatives or factory and adapted to your own requirements.

Buschman also designs special systems and builds standardized parts into wheel, roller and belt type units, overhead trolleys and table-cable conveyors, to move products of all shapes and sizes. Whatever your handling problem, get Buschman literature. Write The E. W. Buschman Company, 4450 Clifton Avenue, Cincinnati 32, Ohio.

Buschman
CONVEYORS

Complete Conveyor Systems for all Industries—Engineered, Manufactured, Installed
Representatives in Principal Cities

383

Circle 30 on Reader Service Card

USEFUL LITERATURE

continued

Lift Truck Attachments

Twenty-four of the newest mechanical and hydraulic lift truck attachments for use in warehouses, manufacturing plants, yards, shipping and receiving docks are illustrated and described in an 8-page brochure. Shows both fork and apron mounted attachments. Text includes a brief description of each, prices, and how to use data.

Little Giant Products, Inc.

Circle 440 on Reader Service Card

Wet Adhesive from Dry Reel

Complete details about the Thermogrip adhesive system are yours in a 16-page catalog. Thermogrip is a dry hot-melt adhesive that comes in cord form, wound on a reel. The catalog tells the advantages of the system and describes the machinery you use with it.

United Shoe Machinery Corp.

Circle 441 on Reader Service Card

New Concept in Packaging

Bax containers are rectangular tubes of reinforced single-ply kraft paper. You use them for products that support their own weight. The system also includes the automatic or semi-automatic packaging machinery needed. Literature describes Bax in detail.

St. Regis Paper Co.

Circle 442 on Reader Service Card

Speed Truck Movement

Here's an informative kit containing facts, figures, and equipment of interest and value to anyone planning a new or improved truck loading dock. Featured is an 8-page booklet called "Loading Docks And Yards." This includes minimum design standards and efficiency ideas. The Hi-Lo Adjust-A-Lip dockboard is shown in action.

The Kelley Co.

Circle 443 on Reader Service Card

Facts About Van Containers

Transporter van containers are the subject of a 12-page booklet now available. The literature tells how these welded steel master containers reduce pilferage and shipping damage and save money in shipping. They can be used for piggyback shipments on truck and rail cars to cut shipping costs.

Dravo Corp.

Circle 444 on Reader Service Card

Automatic Case Sealer

Bulletin 100-60 details the Packomatic Omnomatic-Rotopress machine.



Yale Worksavers do a better job at lower costs

You lose money using big "rider" trucks for jobs that Yale Worksavers can do better at lower costs. Count on Yale Worksavers to take at least 25% of the loads carried by your heavier rider trucks. They maneuver easily, fit into tight places, roll safely where rider trucks are too big or too heavy for floor capacity. They save money, too, since all personnel can operate them. Yale Worksavers carry capacities of from 1,000 to 10,000 pounds. Write for further information. Or ask the Yale representative to show you how to cut costs by buying and operating Worksavers.

Write Yale & Towne Manufacturing Company, Materials Handling Division, Philadelphia 15, Pa., Dept. MT-4.

Yale Materials Handling Division, a division of The Yale & Towne Manufacturing Company. Manufacturing Plants: Philadelphia, Pa., Forrest City, Ark. Products: Gasoline, Electric, Diesel and LP-Gas Industrial Lift Trucks; Worksavers; Warehouses; Hand Trucks; Industrial Tractor Shovels; Hand, Air and Electric Hoists.

YALE®

INDUSTRIAL LIFT TRUCKS
TRACTOR SHOVELS • HOISTS

YALE & TOWNE

OLSON CONVEYORS



Complete Plant-Wide Systems engineered to your specific operational needs...

Or Single Units to handle everything from eggs to engines, small cans to steel beams.

Our new Catalog, "Olson Material Handling Conveyors", shows them all... write for it.

Specify

OLSON CONVEYORS

Manufactured by **SAMUEL OLSON MFG. CO., INC.**
2426 Bloomingdale Avenue • Chicago 47, Illinois
DIVISION OF CHERRY-BURRELL CORPORATION

Circle 131 on Reader Service Card

USEFUL LITERATURE

continued

It seals and discharges shipping cases of varying dimensions, within a wide range of case sizes, and in random order. Complete operating details of the fully-automatic unit are covered. A table of models, sizes, speeds, and ranges of each accompanies plan and elevation drawings. Company says it speeds production, saves floor space, and permits flexibility in floor planning, reduces maintenance and downtime costs.

J. L. Ferguson Co.

Circle 445 on Reader Service Card

Portable Electric Hoists

Catalog 15010-15C-59 contains a complete listing of specifications and prices for the new Push Button Control model and the Pull Cord Control Model Budget unit. These hoists are lightweight, and come ready to hang-up, plug-in, and use. Both models are available in capacities ranging from $\frac{1}{4}$ through 2 tons.

Manning, Maxwell & Moore

Circle 446 on Reader Service Card

Centralized Lubrication Systems

Revised general brochure contains information on the company's complete line of centralized systems of lubrication. Advantages of Farval Centralized Lubrication and operating principles are discussed, as well as system components. Bulletin 26-T also contains typical applications.

*Farval Division
Eaton Mfg. Co.*

Circle 447 on Reader Service Card

Steel-Welded Dock Boards

Literature describes company's line of HECO Dockboards, and tells how the new HECO HD drop pin automatically positions the dockboard between the rail and the dock. A selection chart enables the user to easily select the proper length dockboard for his particular operation.

Hamerslag Equipment Co.

Circle 448 on Reader Service Card

Estimate Your Industrial Truck Costs in 3-Minutes

A 12-page brochure makes it possible to estimate, in a matter of minutes, the costs incurred by industrial trucks. Nomographs or alignment charts show costs of depreciation, operation, and maintenance for both gasoline-powered and battery-powered trucks.

Lead Industries Association

Circle 449 on Reader Service Card

PAYLOADER®



Efficient, flexible coal-handling system— outdoors or indoors

The versatility of "PAYLOADER" tractor-shovels on all kinds of industrial materials handling work has also made them favorites for coal handling operations at many industrial power plants — to carry from stockpiles to hoppers, load trucks, build stockpiles, spot cars, load-out ashes.

Maintenance work too. Many plant and yard maintenance departments have their own "PAYLOADER" for both inside and outside work. They transport equipment, excavate, grade, landscape, level, load-out waste, level waste dumps, maintain private roadways and parking lots, plow and load-out snow.

A size to fit your need. "PAYLOADER" units are available in many operating capacities — from 2,000 to 12,000 lbs. — and lifting-dumping heights up to 15 feet. Numerous attachments are also available, such as snow plows, pick-up sweepers, crane hooks and fork lifts, that further increase "PAYLOADER" usefulness for plant and yard maintenance.

Your nearby Hough Distributor, who sells and services "PAYLOADER" units, is ready to help you discover how these proven tractor-shovels can be applied, with profit, to many and varied operations.

HOUGH®

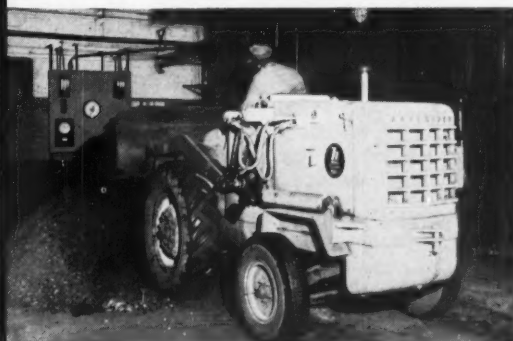


THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY



HOUGH, PAYLOADER, PAYMOVER, PAYLOGGER and PAY are registered trademark names of The Frank G. Hough Co., Libertyville, Ill.

Load trucks, build stock piles, carry from stock piles, feed hoppers, clean-up, spot and switch cars, load-out ashes.



This Model HAH (3,000 lb. operating capacity) carries coal into boiler room from outside piles.

THE FRANK G. HOUGH CO.
731 Sunnyside Ave., Libertyville, Ill.

Send data on all "PAYLOADER" sizes and industrial uses.

Name _____

Title _____

Company _____

Street _____

City _____

State _____

7-B-7

JOB-MATED



Close head room explosion-proof hoist, with hand geared trolley, bronze wheels and stainless steel tackle.

Give profits a lift... with Shepard Niles JOB-MATED Hoists

It's the exact combination of capacity, clearance, speed and controls that makes this Shepard Niles Explosion Proof Hoist exactly right for your particular job. A hoist accurately matched to the job cuts handling costs, moves more materials faster, and gives longer service life.

And it's easy to match precise job conditions at Shepard Niles. With thousands of types and sizes of hoists to choose from, you are sure to find the **right** hoist for truly efficient, economical performance in your plant.

You have your choice of 1/4-ton to 20-ton capacities; of floor or cab controls; motor-driven or hand-operated trolleys; regular or long lifts; and regular or close clearances. Whatever combination you choose, you get the quality construction and advanced engineering that have made Shepard Niles America's largest manufacturer of hoists and cranes.

For complete details on Shepard Niles "Job-Mated" hoists, write for a descriptive bulletin, or ask a Shepard Niles representative to call.

SHEPARD NILES
CRANE AND HOIST CORPORATION

2708 Schuyler Ave., Montour Falls, N.Y., U.S.A.

Circle 151 on Reader Service Card

PRESS TIME NEWS REPORT

R. G. Arnold Heads MHEDA

ROBERT G. (BOB) ARNOLD has taken over the reins of the Material Handling Equipment Distributors Association for 60/61. He was elected president at the Chicago convention, just concluded. Arnold succeeds Arthur R. Canfield in the head office.

Other officers elected are: A. Don Bowman, executive vice president; Joseph G. Green, vice president; Stanley B. McDonald, vice president; Howard Bernstein, treasurer; and William R. Noble, executive secretary.

Arnold served last year as executive vice president. He is treasurer of the Arnold Machinery Co., Salt Lake City. He has served as chairman of the Distributor-Manufacturer Relations Committee, and has been active in MHEDA since it began.

McDonald served last year as treasurer, and Bernstein as vice president. The other outgoing officer along with Canfield is Albert H. Bode, who completed his term as vice president.

Main speakers at the three day convention were R. C. (Clem) Sollenberger, executive vice president of the Conveyor Equipment Manufacturers Association, and John H. (Jack) Lewis, of Lewis-Shepard Products, Inc.

Winners of the 1960 MHEDA National Photo Exhibit contest, conducted in conjunction with the convention are as follows:

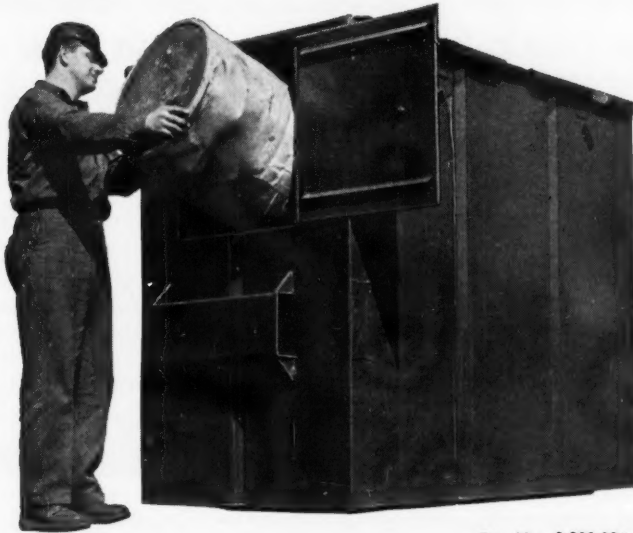
Industrial Trucks: 1st Award, Ken Combs, The Raymond Corporation; Honorable Mention, E. G. Wallace, E. E. Wallace and Son.

Light Conveyors: 1st Award, A. A. Cummings, Freeman Industrial Service, Inc.

Cranes-Monorail: 1st Award, R. Peter Plank, Haddrell Corp.

Special Equipment: 1st Award, C. F. Falkner, Material Handling Equipment Co., Inc.; Honorable Mention, George Tripp, Jr., Little Giant Products, Inc. ♦ ♦

How our small plant solved its waste disposal problem WITHOUT CAPITAL OUTLAY....



Pat. No. 2,900,096

DEMPSTER-DUMPMASTER Equipped Hauler Provides Containers and Service for Small Fee

Our small Midwestern manufacturing firm did not generate enough refuse to justify ownership of its own refuse disposal system. Yet, it was plagued by unsightly trash piles, fire hazards and scattered refuse in the plant yard.

Our plant engineer then heard of a **DEMPSTER-DUMPMASTER** equipped private hauler in the adjoining city. A survey revealed that two big-capacity refuse containers, placed one at each end of the plant, would handle the entire refuse accumulation.

The private hauler placed the containers, and a small monthly fee covered maintenance, labor, hauling and dumping refuse. No capital outlay was involved, disposal costs were reduced, and plant house-keeping was vastly improved.

In all major cities, private haulers who own **DEMPSTER-DUMPMASTER** equipment render fast, efficient, low-cost refuse storage and collection service. They place one or 100 containers at your service for a reasonable fee. A free brochure describes their service in detail.

Free Brochure and Name of Nearest Private Hauler on Request
Dept. MH-7 **DEMPSTER BROTHERS** Knoxville 17, Tenn.
Inc.



**IN ALL LEADING CITIES
FROM COAST TO COAST**



DEMPSTER-DUMPMSTER



DEMPSTER-DUMPMASTER



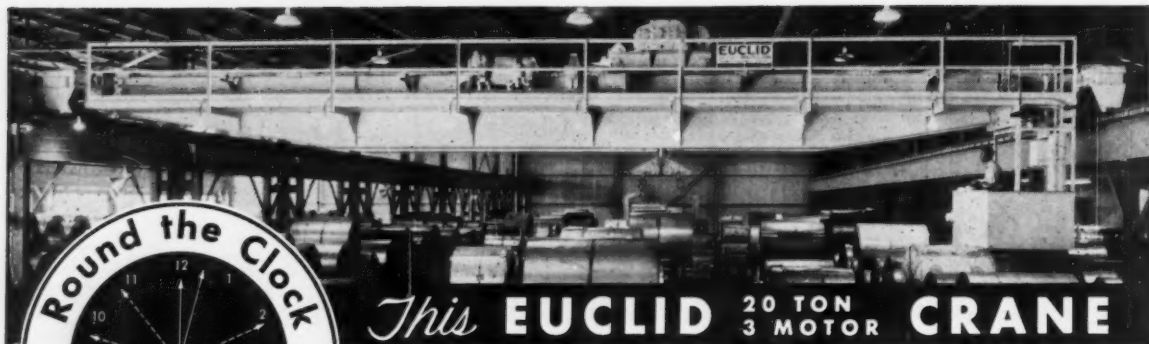
**DEMPSTER COMPACTION
TRAILER**



DEMPSTER DUMPMASTER

**EQUIPPED
PRIVATE HAULERS**

Circle 56 on Reader Service Card



This EUCLID 20 TON 3 MOTOR CRANE

Expedites Steel Coil Handling IN and OUT of this STEEL WAREHOUSE and PROCESSING PLANT

Yes, practically anytime of the day or night you'll find a man at the controls of this double girder, cab-operated, overhead traveling crane. With an impressive span of 60' it covers every square foot of one of the large storage bays at the Euclid, Ohio, plant of Chesterfield Steel Service Company. Ease of precision control and rapid acceleration

and braking of all travel movements assure an unprecedented coil handling volume.

Built for Class 4 service, this crane is one of seven Euclid cranes in operation in this warehouse.

Euclid builds cranes in a wide range of spans and capacities for all purposes.



WRITE TODAY FOR THE CRANE CATALOG

THE EUCLID CRANE & HOIST CO. 1365 Chardon Road • Cleveland 17, Ohio

REQUEST A SURVEY of your present facilities by a QUALIFIED EUCLID REPRESENTATIVE



we call it
"Metal Fatigue"

Prevent Costly Accidents
with the

LANGSENKAMP SUPERSTRENGTH ALUMINUM DOCKBOARD



accessories
illustrated
are optional
features

Regardless of which type of metal your dockboard is made, constant use will cause it to tire. A quick and regular inspection for signs of overuse and fatigue, however, may eliminate a serious accident. **LANGSENKAMP DOCKBOARDS** have their own built-in warning signal that helps prevent these accidents. The board flexes and "sets" when it has been overloaded or becomes fatigued. **POUND FOR POUND**, the *Langsenkamp Dockboard* has over twice the capacity of other light metal boards—it's as strong as comparable steel plate.

write for
free folder:

"DOCKBOARD 1960"



F. H. LANGSENKAMP COMPANY

227 East South Street • Indianapolis 4, Indiana

Circle 108 on Reader Service Card

MATERIAL HANDLING ENGINEERING

EQUIPMENT

REVIEW

of the MHI

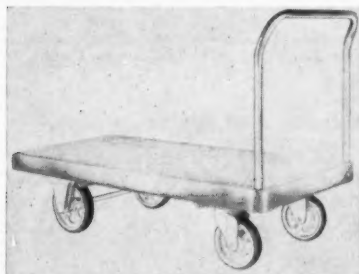
New England

Show

● A report by our editors on the products shown at the first Regional Show sponsored by The Material Handling Institute. Many favorable comments on the show were quoted in the Daily Show News, published on the spot by the MHE staff. As one exhibitor stated, "When you bring the product into the area, you give local engineers a chance to see it, particularly those who don't get to national shows. We've found good interest in our product at the New England Show."

Unitized All-Aluminum Trucks

Nutting Truck and Caster Co. says you get more payloads, longer service from Structo-Lite trucks. Frames are welded



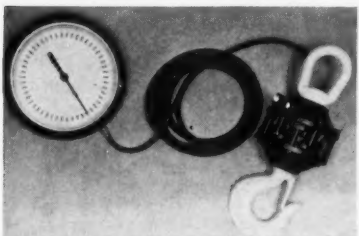
structural aluminum, save a third in weight. Running gear is bolted on, not welded, for quick and easy replacement.

Nutting Truck & Caster Co.

Circle 300 on Reader Service Card

Crane Scale Remote Reading

Save time and money. Weigh and handle material in one operation, says Martin-Decker Corp. Their Remote In-



dicating Crane Scale works with your overhead crane. It solves the problem of

convenient, accurate readability in an easy-to-handle, compact system. The crane hook picks up the load element. Weight shows on the indicator mounted at eye level close to the operator. There are no "O" rings. Accuracy meets Bureau of Standards specs.

Martin-Decker Corp.

Circle 301 on Reader Service Card

A Broad Range Of Lift Trucks

Lewis-Shepard demonstrated electric-powered and hand-operated trucks under working conditions. Among the trucks



were the newly-developed JackStacker for stock picking (see photo). It's a low silhouette, counterbalanced unit with 24-volt power and components throughout. Capacity is 2,000 and 2,500 lb. Operator can ride the truck and can easily see the high stacking forks regardless of position.

Lewis-Shepard showed a new battery-operated high stacking Walkie, the Totemaster. It has a built-in charger unit.

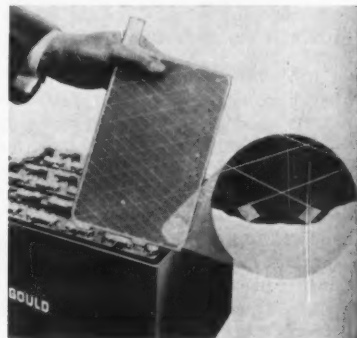
Other electric-powered trucks included sit-down models, StanDrive models, SitDrive models, narrow aisle and rider type high stackers, straddle and counterbalanced high lift walkies, low-lift walkies, low-lift hydraulics, and hand operated stackers.

Lewis-Shepard Products, Inc.

Circle 302 on Reader Service Card

Improved Battery Plate

The Industrial Division of Gould-National Batteries, Inc., had the Siliconic battery plate on display. The Gould



patented process is said to result in a plate with 10-25% longer life and improved electrical characteristics. All models of the Thirty and Kathanode lines are available with the plate.

Gould-National Batteries Inc.

Circle 303 on Reader Service Card

Induce Vibration

Displays of Vibrolator vibration inducers and a full line of accessories and mounts were shown by Martin Engi-

Steel company riggers find:

A-W crane fast, safe, versatile!



Telescoping boom of A-W crane removes damaged gear from overhead crane.

Riggers at Columbia-Geneva Steel Division of United States Steel Corporation, have an Austin-Western Model 210 hydraulic crane to work for them.

A precision unit

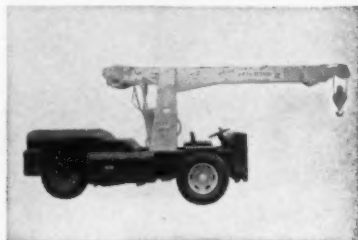
They have found it a good, fast, safe piece of equipment. It is used primarily for such maintenance work as repairing overhead cranes, installing water pumps, and erecting steel. More and more uses are found for it daily, often for materials handling. It is particularly useful for any work that requires precision lifting, carrying or placement. U.S. Steel also has an A-W at its Fairless Works, in eastern Pennsylvania.

Available in five models; capacities range from 5 to 11 tons. Most feature all-wheel drive, all-wheel steering, continuous full circle boom rotation, telescoping boom, and hydraulic controls.

Optional features available.

Complete line

Why not investigate this complete line of lift, carry and place equipment. For facts and figures, or a demonstration, contact your nearby Austin-Western distributor or write us.



New Model 110—5-ton capacity range. 220° boom swing without cab. Dual front driving wheels; dual rear trunnion steering.

Austin-Western

CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.

BALDWIN · LIMA · HAMILTON

Power graders • Motor sweepers • Road rollers • Hydraulic cranes

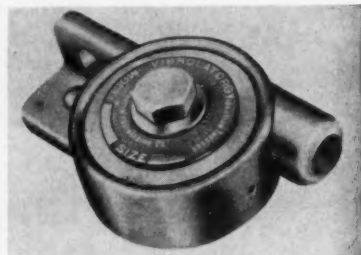
Circle 16 on Reader Service Card



SHOW REVIEW

continued

neering Co. A new line of heavy duty vibrators was introduced. Also featured was the lightweight (4½ oz.) BD-10 (see photo). This new unit has all the power



and strength of its 11-oz predecessor. It has a replaceable jet for greater air economy. Vibration comes from a rolling ball driven in an orbit on replaceable raceways of hardened high alloy steel. You may obtain it in natural aluminum finish at no extra cost.

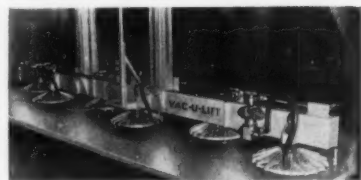
Martin also showed a new electric vibrator which has its vibrational orbit close to and parallel with the hopper wall. This eliminates the need for a reinforcing plate on even the thinnest hopper materials. Quick clamp mounts enable it to be moved quickly and easily. Called the DHE-111, it offers stepless speed control from 2,000 to 10,000 VPM.

Martin Engineering Co.

Circle 304 on Reader Service Card

Handles Hot Aluminum Liners

All Vac-U-Lift Company units recently developed were on display. Among them was a special unit for handling hot



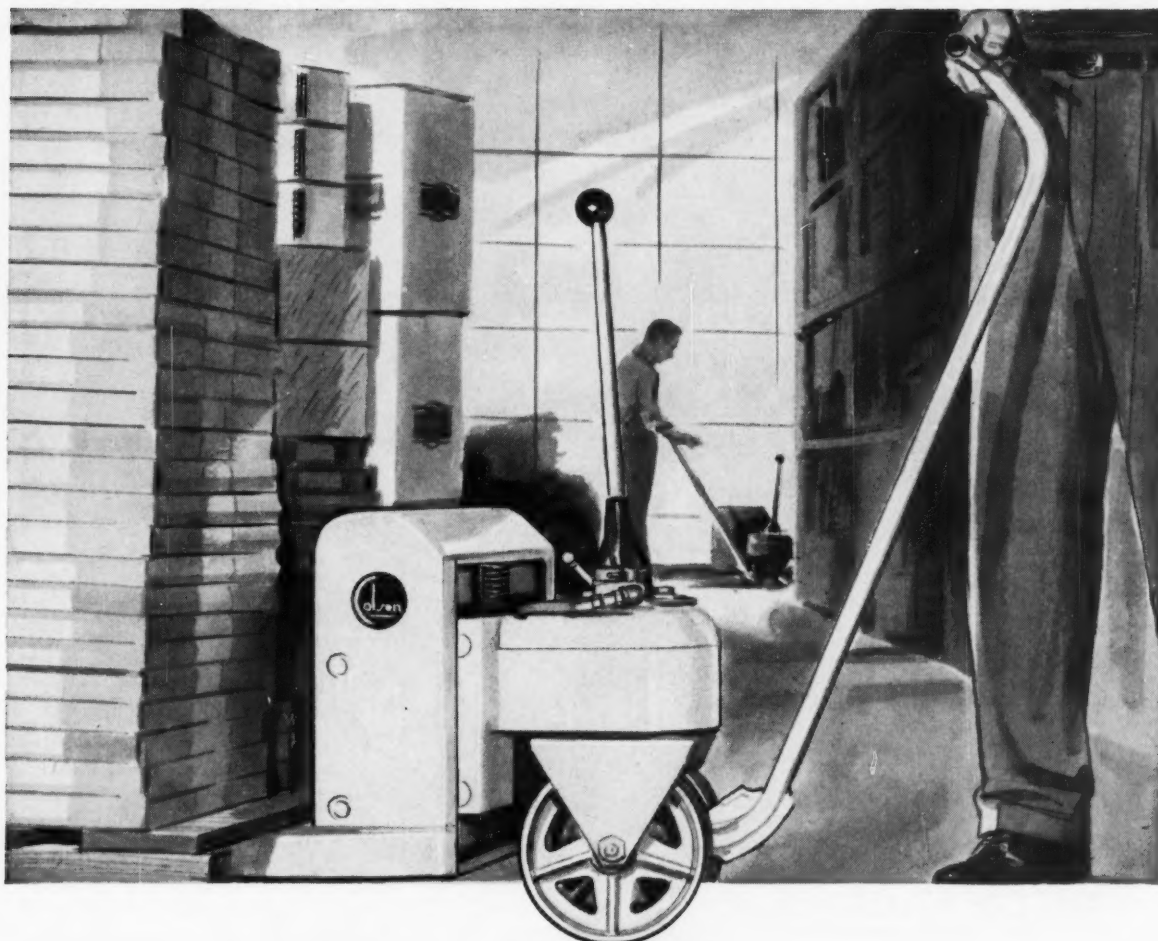
aluminum liners. Overhead track unit has 15' pad beam specially designed to take hot aluminum liners approximately 16' x 6' x 3" from a moving conveyor and transfer them to a stack. The liners, at a temperature of about 700 degrees F., are picked up with specially designed high temperature Pyro Pads. They have special seal rings designed for temperatures in excess of 700 degrees F.

Vac-U-Lift Co.

Circle 305 on Reader Service Card

New Lift Trucks

Allis-Chalmers Manufacturing Co. introduced three new lift trucks. Their capacities are 3,000, 4,000, and 5,000 lb. They are powered by gasoline or LP gas



from the ground UP builds it better...

Colson starts with the first essential...mobility, and begins building quality there with Colson wheels and casters. Seventy-five years of experience go into putting together the *total* unit. Literally from the ground up, Colson builds it better, supplying the complete product. From Casters to completion, each part of Colson's pallet trucks is made with the careful precision that has made Colson famous for long-lasting quality. Quality costs less. Buy once, buy the best... Colson.



75 years of experience in supplying field-tested equipment and casters to industry and institutions. Millions of satisfied customers know and respect the name COLSON synonym for quality.

HYDRAULIC LEVERLIFT PALLET TRUCKS

Colson's new 2500 and 4000-lb. capacity single and double face pallet trucks embody every feature industry demands. Exclusive new Roll-O-Cam pallet entry device eliminates need for special chamfered pallets, and ends sliding and skidding. Spring counter-balanced handle turns to 240 degrees for maximum maneuverability even in tight spaces. Simple hydraulic pump lifts loads easily. Lightweight and load designed for handling ease and floor protection. Send for free illustrated catalog showing the quality features of Colson pallet and open and closed deck skid trucks.

THE COLSON CORPORATION

Plants in: Jonesboro, Ark.; Somerville, Mass. and Elyria, Ohio

7 S. Dearborn Street
CHICAGO, ILLINOIS

Circle 44 on Reader Service Card

MAY-FRAN
CHIP-TOTE
 PROVIDES ADDED VERSATILITY
 FOR HILL DRILL



**REMOVES
 SCRAP
 AUTOMATICALLY
 AND CONTINUOUSLY!**

When continuous high-speed metal working operations mean the difference of profit or loss . . . the May-Fran CHIP-TOTE stands ready to remove scrap efficiently and automatically.

In the photograph above, the HILL-DRILL (a product of Walter P. Hill Inc.) is shown equipped with a May-Fran CHIP-TOTE. This accessory unit was fabricated into the machine prior to delivery to customer. Every day, more and more machine tool manufacturers are specifying the CHIP-TOTE to provide their automatic machines with virtually unlimited production without need for shut-down for scrap removal.

CHIP-TOTE scrap handling units are available for attachment to almost every kind and type of machine tool in use today. They are assembled from mass-produced component parts to meet a wide range of varying specifications. If you have a scrap handling problem involving wet or dry chips turning or borings, write today for your copy of MF-640 which describes the CHIP-TOTE in detail.

MAY-FRAN
 ENGINEERING, INC.

1611 Clarkstone Rd. • Cleveland, Ohio

Circle 118 on Reader Service Card



SHOW REVIEW

continued

engines with a maximum 52 hp. You also can get them with diesel power. Transmission either is standard or Power-Shift



Torque Converter Drive. Truck design permits speedy servicing. A safety feature is the new emergency brake with two shoes that expand internally to the emergency brake drum for positive holding. It's independent of the standard hydraulic brake system. The trucks are rugged, economical, comfortable, and safe.

Allis-Chalmers

Circle 306 on Reader Service Card

Sweeping Demonstration

Model 99 Hydra-Sweep was demonstrated at the Hydra-Action Co. booth. This is a power sweeper operated with a



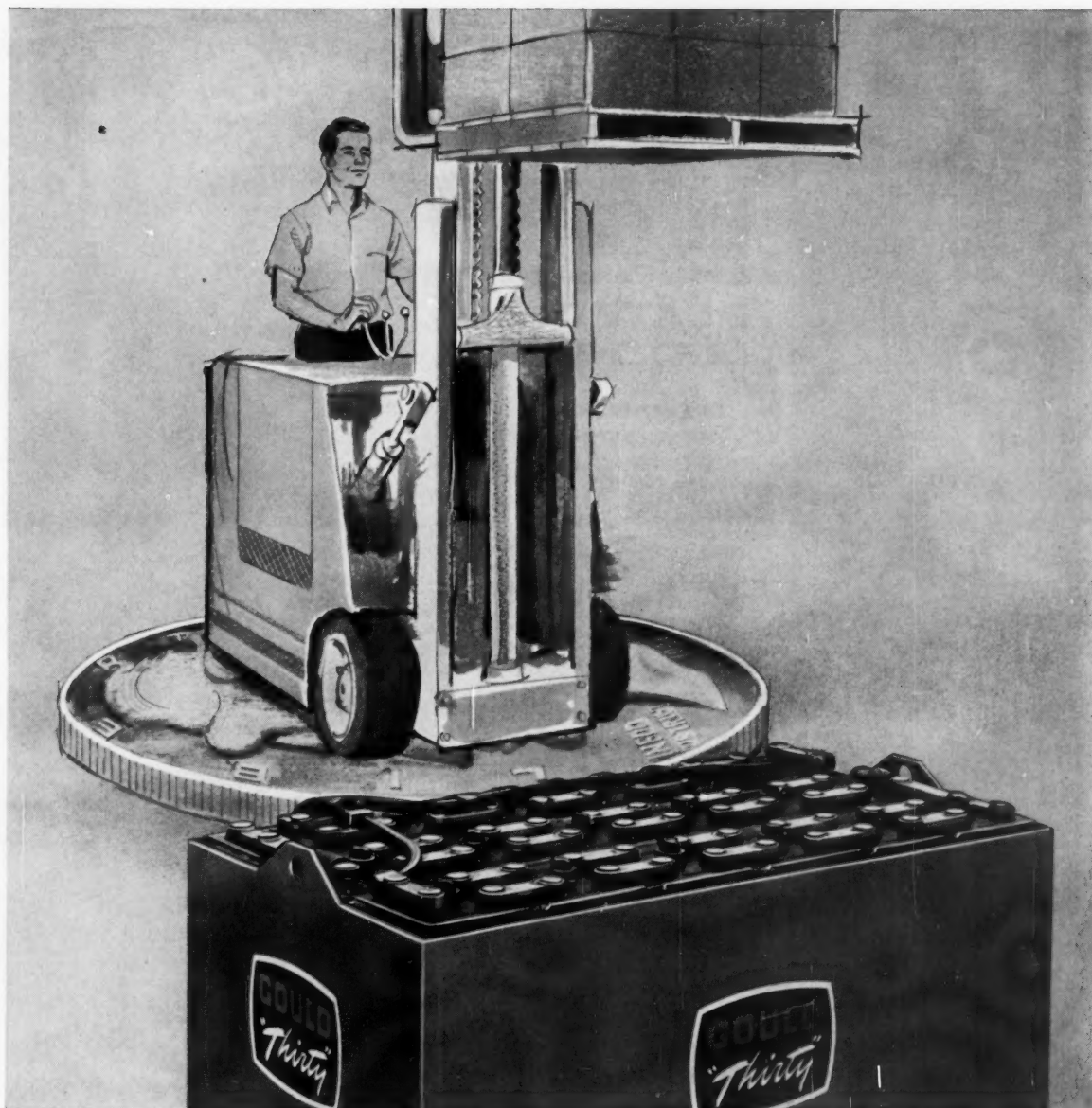
sealed hydraulic drive system. Using one pedal, the operator can go forward, reverse, change speeds, and apply the brakes. A constant engine speed maintains constant broom speeds.

Hydra-Action Co.

Circle 307 on Reader Service Card

Junior Added To Family

Junior Palletainers handle, store, and transport small parts. They are sturdy, close-meshed, all-steel containers newly



Electric Trucks are MORE MANEUVERABLE

Short-wheelbase electric trucks require less turning radius. They are capable of handling loads in much narrower aisles and congested areas. These battery-powered electric trucks make possible an increase in space utilization by reduction in aisle width.

Add maneuverability to a convincing list of other benefits—lower operating costs, less maintenance, clean, quiet and safe operation—and you can see the reason why users prefer battery-powered electric trucks for modern, efficient materials handling.

Electric truck users generally agree on one other point, too—Gould Batteries for longer life. With the new Silconic Plate, Gould Batteries offer up to 25% longer life.

Join the list of users who prefer this ideal combination of electric trucks and Gould Batteries. For more information, write or call your local Gould representative. Ask for booklet "Why We Use Battery-Electric Industrial Trucks." Gould-National Batteries, Inc., Trenton 7, N. J. In Canada, write to Gould-National Batteries of Canada, Ltd., 1819 Yonge Street, Toronto, Ontario.

More Power to you from **GOULD**

Circle 84 on Reader Service Card

Add new
"TRAVEL-N-LIFT" Technique
to your Product Handling...



Moves Rider and Load



Lifts as it Moves

Weld-Bilt "RIDER-BOY" Self-Propelled PLATFORM LIFT TRUCK

for

ORDER PICKING
PRODUCT MOVEMENT
OVERHEAD MAINTENANCE

"Weld-Bilt"
PRODUCTS
A DIVISION OF THE BAKER



Very Maneuverable



Speeds Order Picking

Push Button controlled from steering Tiller at operator's fingertips, new RIDER-BOY travels through your shop or warehouse, with load and rider, steers easily through aisles, around sharp corners, — lifts and lowers man and load as it moves, for time-saving platform positioning, — lifts to any height up to 10 feet. Saves time and effort on order picking, product moving, overhead maintenance, stacking, storage, and many other tasks.

Electro-Hydraulically operated, powered by heavy duty industrial batteries, with built-in charger, new RIDER-BOY easily handles load capacities up to 1000 lbs.

Write for the whole story of new Weld-Bilt "Rider-Boy" advantages in your product handling needs.

POWER BOY VERTI-LIFT

LIFT TRUCKS

HYDRAULIC TABLES

PLATFORM TRUCKS

HY-BOY VERTI-LIFT

WEST BEND EQUIPMENT CORP.
MATERIALS HANDLING ENGINEERS

335 WATER STREET, WEST BEND, WISCONSIN
Circle 171 on Reader Service Card

SHOW REVIEW

continued

developed especially for the purpose by Union Steel Products Co. Junior stacks



to nearly any height, moves easily on hand floor trucks or regular lift trucks. They fold down flat, too, save 75% of storage and return freight space.

Union Steel Products Co.

Circle 308 on Reader Service Card

A Light Heavyweight

A Langsenkamp Dockboard ¾ inch thick weighs in at 58 pounds, supports a 12,000 pound load. One man handles



it with ease. The board is made of special aluminum alloy with a tensile strength of 65,000 pounds. Yield strength is said to be twice that of other light alloys. Serious overloads won't snap the board. Instead it flexes and sets to give warning of abuse.

F. H. Langsenkamp Co.

Circle 309 on Reader Service Card

Let Air Move Heavy Loads

Making its debut at the New England Show was Whiting Corporation's Pressure-grip, a vacuum handling system. Its application range runs from delicate plate glass to rugged steel plate. Principle of operation is simple. Atmospheric pressure is constantly exerted against the earth at the rate of 14.7 lb per square inch. By evacuating the air from the captive space between the object being handled and a gripper, Pressuregrip brings this force to bear in a



HOW MANY HOURS MAKE A WAREHOUSE?



Unlike theoretical scientists contemplating the fourth dimension, materials handling engineers have a very practical concern with the element of time. In warehousing situations, for example, "how long" is a vital consideration, along with "where", "how much", and "when".

How long must goods remain at rest before they constitute a warehousing problem? An hour, a day, a week, a month? There is no universal answer. In modern and efficient handling systems, where warehousing operations are closely coordinated with other phases of the flow system, a true warehousing problem can result from materials being stopped or stored a few minutes as well as a matter of weeks. And, since such short-term stop-overs usually involve frequent rehandling, rapid turn-over can be a more costly problem than long-term storage would be.

It's paradoxes like this that send materials handling managers to their nearest Rapistan engineer for practical ideas on solving their in-plant warehousing problems. Rapistan has evolved some interesting new



RAPISTAN FLOW RACK SOLVES a localized warehousing problem in this plant. An optimum supply of all parts needed in this assembly area are held in live storage, easily accessible to the worker. As parts are removed from the Flow Rack, others flow forward to take their place.

concepts of long and short-term accumulation. And, Rapistan makes what it takes to put these storage problems "on wheels", where they're handled with the same efficiency you demand in the planned movement of goods over your flow system. The problems may be solved by a special-design Flow Rack for live storage, or something as familiar as a standardized type of wheel or roller conveyor, or a creative application of overhead trolley conveyor, or something as new as our APC "Pressure-sensing" conveyor.

Why not call in your Rapistan handling engineer and let him go "warehouse hunting" with you in your plant. He's trained to spot these "hidden" warehousing problems wherever they may occur in a plant's operations. And he's had worlds of experience in turning these problems into profits for all kinds of manufacturers as well as wholesalers and retailers. We'll show you some examples, in illustrated case studies. **Circle No. 10 on the Reader Service Card.**

DOZENS OF HANDLING PROBLEMS SOLVED

by imaginative use of power and gravity conveyor and improved methods of storage, are illustrated in this newly-revised Handbook of Materials Handling Ideas. For your copy, circle **No. 11 on the Reader Service Card.**



R-K POWER-AND-FREE CONVEYOR KEEPS WAREHOUSED GOODS MOVING



Warehousing problems frequently occur following manufacturing operations, such as this sewing department in a large women's wear plant. Not here, however. Rapistan-Keystone overhead conveyor takes the finished goods directly from sewers to packers, via a power-and-free trolley system. No problem of finished goods accumulation, no floor traffic, no manual movement. Costs go down, as combined storage and transportation goes up on R-K conveyor. For other overhead storage ideas, circle **No. 12 on the Reader Service Card.**

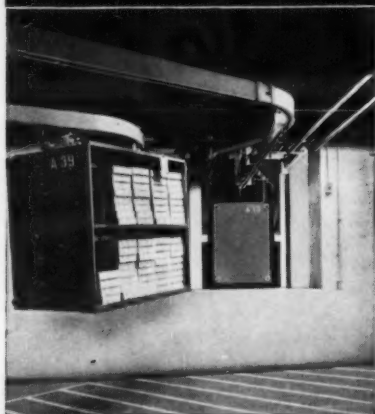
Rapistan®

CONVEYING EQUIPMENT

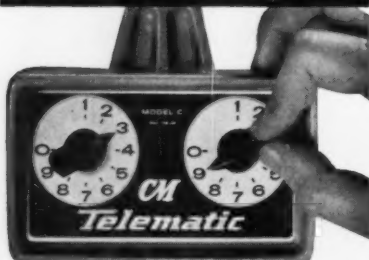
The RAPIDS-STANDARD CO., Inc.
703 Rapistan Building, Grand Rapids 2, Michigan

Power -Flex®

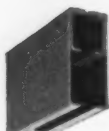
POWER AND FREE
OVERHEAD CONVEYOR SYSTEM*



WITH **TELEMATIC**
AUTOMATIC DISPATCH CONTROL



• Simply set dials and Telematic guides carrier to any station in system



POWER RAIL
FREE RAIL

Employs exclusive unitized "over and under" power and free rail which permits simple switching to right or left as desired.

Power-Flex is designed for automated materials forwarding applications in industrial plants, distribution centers, service buildings and department stores. The most economical system available for loads up to 600 lbs. per carrier. Savings in actual installations range from 25% to 60%.

*Systems in service for your inspection.

Engineered to your very specific requirements.

SEND FOR BROCHURE

Inquiries from your engineers or consultants welcomed.



COLUMBUS McKINNON
CHAIN CORPORATION
Conveyor Division
TONAWANDA, N. Y.

Circle 45 on Reader Service Card

SHOW REVIEW

continued



positive holding action that is virtually unbreakable. Unit has 5-ton capacity, is ideal for general sheet and plate handling. Spring loaded and swivel mounted grippers and crossarms allow flexibility for attachment to a variety of plate conditions.

Whiting Corp.

Circle 310 on Reader Service Card

For Narrow Aisle

Narrow aisle handling was featured by The Raymond Corp. Included was the new heavy duty model shown here. Pow-



ered by a 24-volt electric system, it provides faster lifts and travel speeds. It has 4,000-lb capacity.

The Raymond Corp.

Circle 311 on Reader Service Card

Wall Stretching Idea

Reclaim valuable floor space, says Dolin Metal Products. Store in 8 rows with only one aisle. Track mounted steel



C A N C E R C A N B E C U R E D

More than one million Americans are living proof. Remember...your contributions helped save many of these lives. Your continuing contributions are needed to help discover new cures and, ultimately, the prevention of cancer itself.

Remember, too, if you delay seeing your physician, you drastically cut your chances of cure. Annual checkups are the best way of detecting cancer in time.

**Guard your family!
Fight cancer with a
checkup & a check**

**American
Cancer
Society**



Ya say your solids are
separatin' at the rims . . .



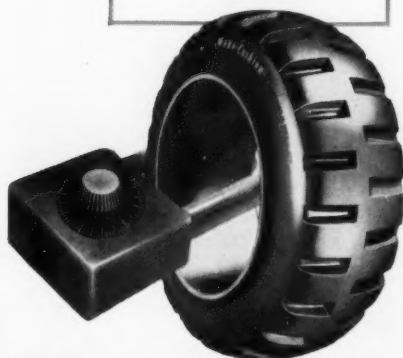
. . . and production's slow
'cause the trucks can't go . . .



. . . and the boss is on your
back because of downtime
and high replacement costs?

... Then you need **MONARCH SOLIDS**
made by the new **MONOLOK*** process!

*Monolok is Monarch's trade-name for a new chemical process that creates the most durable rubber-to-metal bond available to date.



8911-MR

Premature rim separation is the most frequent type of failure experienced with industrial solid tires. And three common causes of this costly problem are embedded metal scrap, chemicals and excessive heat. By destroying the bond between the rubber tire and steel rim, these factors cause severe tire damage under ordinary operating conditions.

NOW . . . after years of research . . . **MONARCH** engineers have developed a solid tire with unprecedented resistance to rim separation caused by these factors. By combining an advanced bonding process with an improved, extra tough, natural rubber stock . . . Compound T-5100 . . . **MONARCH** has achieved a major technological victory by virtually eliminating tire failure caused by premature separation. And . . . this cost-saving benefit is being passed along to truck users without a premium in price!

For additional information on Monarch Tires . . . write direct or see your Monarch dealer. Ask for Bulletin MR-457.



**THE
MONARCH
RUBBER COMPANY**
210 LINCOLN PARK
HARTVILLE, OHIO

7-225 General Motors Bldg.
Detroit, Mich.

2353 No. California Ave.
Chicago, Ill.

Western Warehouse:
Reno, Nevada

Circle 1 on Reader Service Card

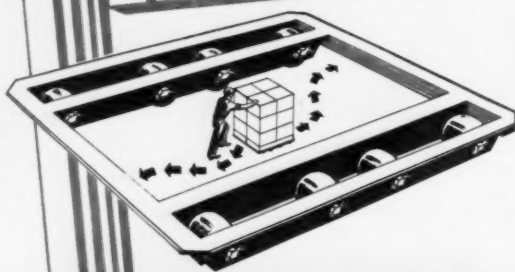
ACE PALLET ROLLERS

You can use your forklifts far more efficiently when Ace Pallet Rollers take over the short moves. Five special-purpose designs available.

ACE SWIVEL KING (right) permits effortless movement in any direction. Five frame sizes, 4000 lb. capacity. Send for Engineering Bulletin 104K.



Free Your Forklifts
For The Jobs They
Do Best



ACE ENGINEERING CO.
3901 GRAND AVE., OAKLAND, CALIF.

DETECTO SCALES

and only
DETECTO SCALES
can say,
"ALL STEEL
CONSTRUCTION"

Write for information
on full line of
industrial weighing
equipment from
1/100 oz. to 100 ton:
DETECTO SCALES, INC.
Dept. MH-4, 540 Park
Brooklyn 5, N. Y.



Circle 57 on Reader Service Card

FOR LOW COST MATERIAL HANDLING



MODEL B



MODEL C



EXPANDABLE

USE...
**BIGELOW-GARVEY
COLLAPSIBLE
TIGHT-CORNER
PALLET BOXES**

THEY'RE REUSABLE

- Economical
- Safe and Neat
- More Convenient
- Quickly Assembled
- Handles up to 5000 lbs.
- Collapsible When Not In Use
- Specially Made For Your Needs

Over 33 Years Material Handling Experience

MISS. ARKANSAS GEORGIA WISCONSIN MINNESOTA KENTUCKY

ALWAYS CHECK

Write for complete details and prices to...

Bigelow-Garvey

lumber company

326 W. HURON STREET - CHICAGO 10, ILLINOIS

Circle 26 on Reader Service Card

SHOW REVIEW

continued

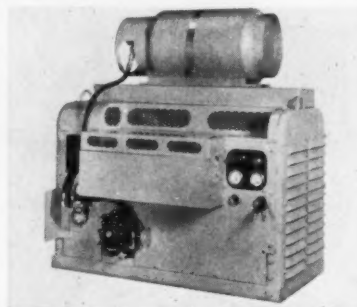
shelving is the secret. You may add 30-100% more productive equipment in the floor area made from wasted aisles.

Dolin Metal Products, Inc.

Circle 312 on Reader Service Card

Add Power Steering

The Ready-Power Co. showed a power steering unit that can be installed on trucks in the field quickly and easily.



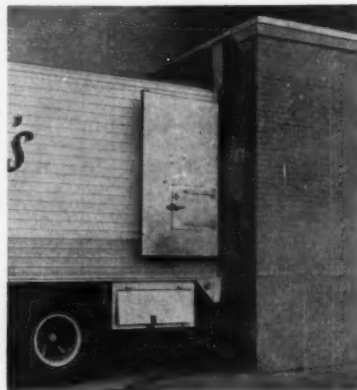
It will give you full-time power steering without interfering with other operations. The Ready-Power Co. also demonstrated the Model HA-3 gas-electric model. This power unit has been engineered for installation on sit-down type electric trucks in the 2,000 to 5,000 pound capacity range.

The Ready-Power Co.

Circle 313 on Reader Service Card

Dock Shelter Cuts Losses

New Frommelt Perma-Dox truck shelters are said to reduce refrigeration loss to less than 5 per cent. They're



inexpensive and are installed permanently for protection in any weather. The maker claims no operation is required for use. Elasticized front, cape cover, and adjustable head curtain fits any truck type snugly.

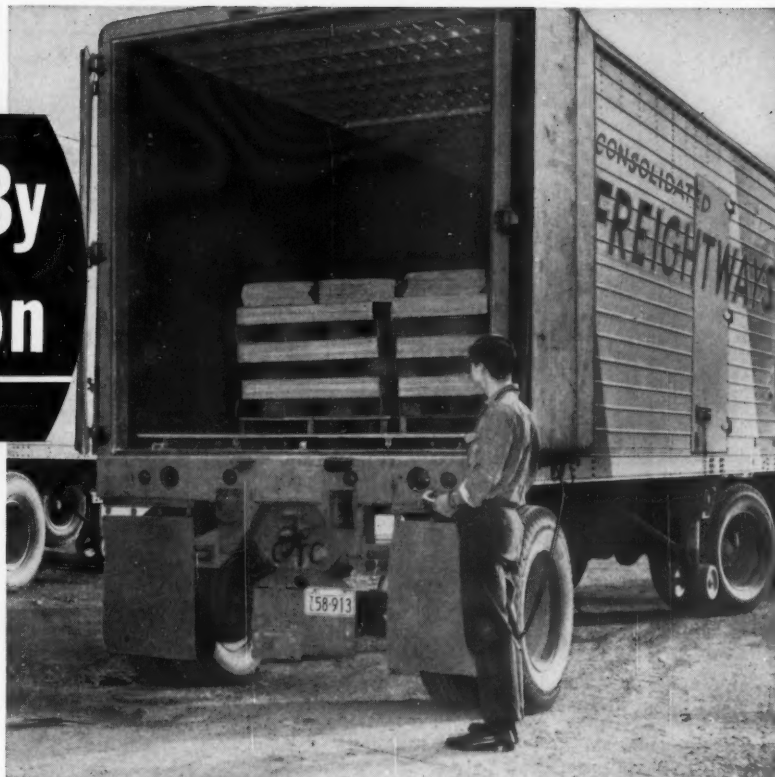
Frommelt Industries, Inc.

Circle 314 on Reader Service Card

MATERIAL HANDLING ENGINEERING

They Load By Pushbutton

There's a
WATSON-DeWitt
MOTO-VATOR
to fit your needs, too



One of Consolidated Freightway's Moto-Vator equipped van trailers used for general cargo handling.

Performance-proved Moto-Vator models handle virtually all loading and unloading situations. With these powered floor conveyors in your truck, loads ride in and out at the touch of a button. No hand loading necessary, no need to run fork trucks in and out of van. You save time, trouble, and damage to cargo and equipment.

MOVABLE FLOOR Moto-Vator models use movable floor segments driven by a single drive chain.

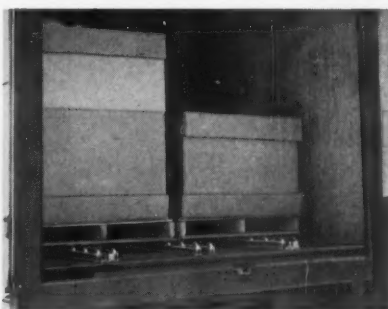
These handle cartons, drums, bales, containers, reels, sacks, bundles, carboys, unitized loads of all types. Consolidated Freightways uses this type.

PALLET SUPPORT Moto-Vator models use twin drive chains carrying aluminum pallet supports for specialized pallet operations. You can choose models for loading single wide pallets, or two pallets side by side.

Model 2CP ... designed for handling wide pallets; dual chains are driven from common shaft.



Twin pallet models; available with synchronized or independently-powered drive chains if desired.



Many Moto-Vator designs are readily available for special applications. For more details, write for free literature. Please address Dept. 120



H. S. WATSON COMPANY

1316 67th STREET, EMERYVILLE 8, CALIFORNIA
1606 LASKEY ROAD, TOLEDO 12, OHIO

Circle 169 on Reader Service Card



FOR LOADS UP TO 6000 LBS.—IN MATERIALS HANDLING SYSTEMS OR FOR CONVENIENT PORTABLE USE

Standard sizes afford a wide selection of heights that readily adapt them to changing requirements—from floor level to a height of 48" and will lift up to 6000 lbs. depending on the unit. Control is fast and sure for any height positioning and with electronic accessories automatic positioning is available. Special cradle tops are available for handling paper rolls and other cylindrical materials.

Clark-Aiken

STANDARD LIFT TABLES



FLOOR LEVEL INSTALLATIONS WITH SAFETY TOE GUARD

Tables may be flush floor mounted with disappearing toe guards for safe operation.

EASY TO MOVE FOR PORTABLE USE

Portable unit is wheel mounted; makes easy mobility around the shop for your requirements.



Send today for informative bulletin. Tell us your requirements and we will recommend table size.

THE **Clark-Aiken** COMPANY
105 HART ST. LEE, MASSACHUSETTS

Canadian Representative: Gordon W. Keates
133 Flora Drive, Scarborough, Ontario

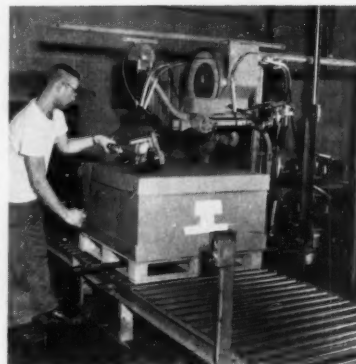
Circle 40 on Reader Service Card

SHOW REVIEW

continued

Automatic Strap

Engineers from Acme Steel Products Division showed production line strapping of unitized loads on pallets or skids. Strapping is power fed around all types of packages or units. You don't have to hand thread the band. The E40 Power Strap-Feed Assembly works well with power machines or hand strapping tools. It has a reciprocating strap track for fast, simple, and inexpensive strap feeding. A second model applies cross straps without a turntable. The show demonstration included a mounted A4 strapper, pneumatically powered. It tensions, seals, and cuts off the band, all under power.

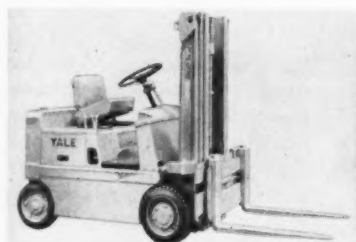


Acme Steel Co.—Steel Products Division

Circle 332 on Reader Service Card

Short Turn Fork Lift Truck

The G54-30 is Gas powered. It's Gas powered. It's the newest product of The Yale & Towne Mfg. Co. They're available in 3,000, 4,000 and 5,000 lb capacity. Features fully automatic torque transmission, interlocking I-Beam mast construction, and short turning radius. Yale's Midget King electric hoist was also a main feature. This series comes in capacities from $\frac{1}{2}$ to 2 tons. They combine portability, practicability, and economy.



Yale & Towne Mfg. Co.

Circle 333 on Reader Service Card

Print Your Labels

A label-printing operation was demonstrated by Weber Marking Systems, Inc. Representative showed how the Dual-80 label printing machine works. It prints from a rubber mat with changeable rubber type or stencil drum, counts from preset counter, cuts to size and stacks labels automatically at the rate of 105 a minute.



Weber Marking Systems Inc.

Circle 334 on Reader Service Card



BUY THE LOWEST-COST BATTERY YOU CAN FIND



New 800 amp-hr Model TGS Exide-Ironclad. Same outside dimensions as former 720 amp-hr battery. Other new 22 $\frac{5}{8}$ -in. high Exide-Ironclad Batteries in capacities from 400 to 1280 amp-hr.

In the whole world, only the new Exide-Ironclad TG Super gives you so much battery power for so little. Packs 11% more power with no increase in size. That means your present trucks can do more work every shift. And this more powerful battery actually costs you less per amp-hr. Same long Exide-Ironclad life potential for low annual cost. Search all you want. You'll discover, as most others have, that the Exide-Ironclad is truly the lowest-cost battery you can find. Write for our new bulletin. Exide Industrial Division, The Electric Storage Battery Company, Philadelphia 20, Pa.



New Exide battery for small industrial trucks and personnel carriers. Model 3-KCS-9. Features new-design tubular positive plate. Up to 30% more capacity than automobile batteries. Up to four times their average life. Fits same compartment. Write for new bulletin.

Exide®

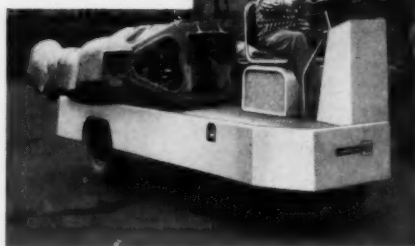
Circle 63 on Reader Service Card



PRIME-MOVER PLATFORM TRUCKS IN TWO SIZES

1000 lb. & 4000 lb.
CAPACITIES

MODEL F-10 A 1000 lb. capacity truck. Carries cartons, long stock, mixed freight, maintenance supplies, baggage, fire equipment. Ideal for foremen, superintendents, inspectors, supervisors. 18 sq. ft. deck area. Wisconsin engine. Industrial type combination transmission. Price: \$880 manual start; \$996 electric start. F.O.B.



MODEL F-40 Torque converter drive. No shifting, smooth starts. This is a big rugged 4000 lb. capacity unit that delivers heavy duty service as a freight carrier, shuttle truck, long stock transporter, and to give mobility to equipment and personnel. 28 sq. ft. deck area.

PRIME-MOVER

Prime-Mover platform trucks are marketed by industrial truck distributors. Ask there or write: Prime-Mover Co., Muscatine, Iowa.

INTRODUCING THE PRECISION-BUILT NON-MARRING STEEL LIFTING CLAMP

- Smooth ground jaws
- Five to one lifting ratio
- Wedge screw adjustment
- No teeth



Where marring of stainless, copper, aluminum and other polished metals is a factor, we recommend the above clamp.

Write for catalogue
**J. C. RENFROE
& SONS, INC.**

1926 SPEARING STREET
JACKSONVILLE, FLORIDA

Circle 141 on Reader Service Card

NO Relays
Controls
Moving Parts
WITH A

La Marche
FULLY AUTOMATIC
BATTERY

RechargeR

**OVER
80 TYPES
AVAILABLE**

**WALL - MOUNTED
FLOOR - MOUNTED
TRUCK - MOUNTED
BATTERY - MOUNTED**

18,000 In Use

FOR ALL DATA:—

La Marche Mfg. Co.
3955 25th Ave., Shiller Park, Ill.
GLadstone 5-8855

Circle 107 on Reader Service Card

SHOW REVIEW

continued

Strapping Made Easy

United States Steel Supply Division's portable pneumatic Model 13 Strapping Machine straps large, irregular shapes.



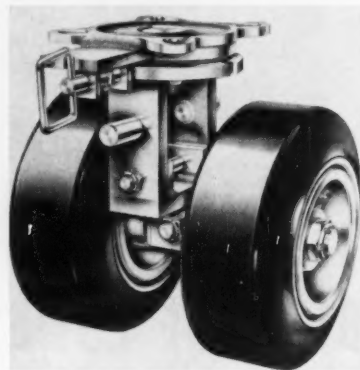
Model 12 Strapping Machine makes large scale bundling and packaging a pushbutton operation. Both use high tensile round strapping.

U. S. Steel Supply Div.,
United States Steel

Circle 315 on Reader Service Card

Casters Tow At High Speeds

Faultless Caster Corporation's 18-10X4 specialty caster is equipped with two 10"



x 4" press-on tires and a four-position lock. It's designed for use on heavy-duty transporting dollies, with a load rating of 2,500 lb at 10 mph. This caster is excellent for towing at high speeds.

Faultless Caster Corp.

Circle 316 on Reader Service Card

Truck Cuts Down Warehouse Size

Towmotor Corp. presented its Naro-Aisle-Stack Model 590. A demonstration showed how Model 590 can save 50 percent of warehouse space because it needs no more than a 6-ft aisle. Entire front end of the unit pivots 180 degrees, 90 degrees to right to left. Hydraulically-operated outriggers stabilize the lift truck laterally while pivoting. Model 590, with

**Special purpose vehicles
perform more efficiently...give longer,
dependable service...with**

ROCKWELL-STANDARD

Driving Assemblies

**Hydra-Drives®
Torque Converters**

Planetary Axles

For many years the Transmission and Axle Division of Rockwell-Standard has specialized in the design and production of components that help to assure superior performance for special purpose vehicles. We offer manufacturers a complete design, testing and production service. *And we produce and sell only components, not the complete vehicle!*

The component you think "special"—and highly expensive and time-consuming to build—could well be a standard item in Rockwell-Standard's full line of

driving assemblies and planetary axles, Hydra-Drives torque converters and power shift transmissions.

If your needs call for a "custom" job, you can be sure Rockwell-Standard engineers can design it to exact specifications—and build it for less. For complete information about Rockwell-Standard's full line of driving assemblies and planetary axles; Hydra-Drives torque converters and power shift transmissions, plus other components for special purpose vehicles write or call today.

Another Product of...

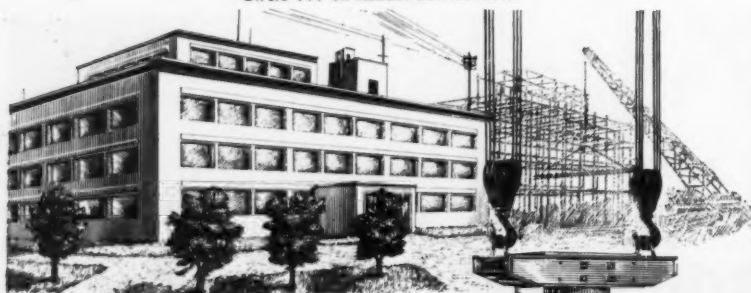
ROCKWELL-STANDARD
CORPORATION



Transmission and Axle Division, Detroit 32, Michigan

Circle 144 on Reader Service Card

Circle 117 on Reader Service Card



INCREASE YOUR PROFIT WITHOUT EXPANDING YOUR PLANT USE MANSAYER® GRABS

One Eastern manufacturing plant, before installing an electric bridge crane and a Mansaver Grab, never thought of stocking over 300 tons of steel at a time. Now they carry up to 800 tons in the same space, handling man-hours were cut in half, service to machines improved and profits appreciably increased.

If you use sheets, coils, palletized or skid-loads, bars, billets, rods, tubes, bales, paper rolls, boxes, barrels or other materials, send us your problem—we have probably answered it before. Or ask our District Representative into your plant to study your problem for presentation for our solution.

MANSAYER

INDUSTRIES, Inc.

3103 East St.,
New Haven, Conn.

Also Manufactured in England by George W. King Co. and in France by Ets. Dujardin et Cie.



NOW YOU CAN LIFT and DUMP ANY CONTAINER!

Dumping standard drums, barrels, boxes and bags is a cinch!

MORE IMPORTANT, no matter what size, shape or type container you use to process free-flowing material — even special in-plant containers — ESSEX can supply the necessary unit for dumping or work-positioning.

ESSEX Dumpers are flexible in design. They can be engineered to suit your individual requirements. For the safe, reliable, economical way to lift and dump (or position) material in any container . . . CALL UPON ESSEX FOR THE ANSWER.

SEND FOR NEW 8 PAGE
INFORMATIVE CATALOG #59

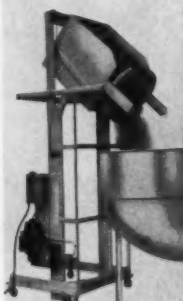
ESSEX CONVEYORS, INC.

Dept. MH, 101 Golden St., Newark 3, N.J.
In Canada: Griswold Engineering, Ltd.,
Montreal and Toronto



HYDRO-DUMPER

Dumps up to 4 feet
(higher if platform
mounted). Load capacity
in excess of 6000 pounds.



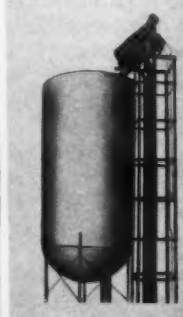
JUNIOR DUMPER

Dumps up to 8 feet
(higher if stationary
unit). Load capacity 700
pounds.



SENIOR DUMPER

Dumps up to 20 feet.
Load capacity in excess
of 4000 pounds.



VERTICAL DUMPER

Dumps to any practical
height. Load capacity in
excess of 4000 pounds.

Circle 66 on Reader Service Card

SHOW REVIEW

continued

a lifting speed of 70 fpm, also is used as a regular fork lift truck. Among design innovations is the Towmostatic Drive, based on hydrostatics. This drive



eliminates transmission, drive line, and differential. It provides single pedal directional control. Differential action is hydraulic with two special motors which transmit torque individually to each drive wheel.

Towmotor also displayed its extra-low-profile lift truck, part of the Van-Stack series. It can stack high in the warehouse. But it also permits easy access to low headroom areas, such as vans, boxcars, and so on.

Towmotor Corp.

Circle 317 on Reader Service Card

Automatic Switching For Towlines

Need a simple, thrifty, mechanical way to dispatch and switch your carts? SI Handling Systems, Inc. has the answer.



Set a dial on sWitch-Cart 600 for fool-proof, automatic towline transportation in new or existing warehousing and manufacturing operations.

SI Handling Systems Inc.

Circle 318 on Reader Service Card

New Locking Angle

Acme Steel Co.'s Fabricated Materials Division featured a new storage rack sys-

tem. The rack, installed without tools, has a load-locking device. A steel bolt fits snugly into a round hole in the side of a column. It can be put in or taken out easily by hand. But once locked, it cannot be disengaged accidentally. The rack



frames are 3" x 3" columns with 1 1/2" x 1 1/2" channel sections welded to the columns for front to back and diagonal bracing. Keyhole slots on the columns provide for beams on 2" centers. Stamped markings show you where to place the beams, which are two overlapping channels with three load bearing points. The standard frame has a 23,000-lb capacity; heavy duty, 30,000-lb capacity. Stock frame heights range from 6 ft to 12 ft in 1 ft increments and depths are 28", 32", 36", and 44". Other sizes available on request. Beams come in stock lengths of 42", 46", 54", 70", 82", 94", 106", and 120". The rack is good for heavy

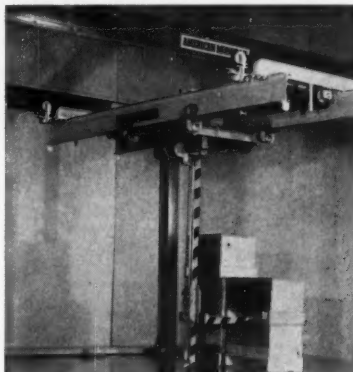
duty storage of pallet and skid loads, dies, drums, pipes, tubing, and others. It's ideal for ceiling to floor storage.

Acme Steel Co.—Fabricated Materials Division

Circle 319 on Reader Service Card

Stacker Crane Shown

A working model of a stacker crane was presented by American MonoRail Co. Representatives demonstrated advantages of the stacker crane. Stackers have either a rotating mast with a lift or a tubular mast with a rotating and



lifting mechanism. They hang from a crane truck for movement on standard double-bridge cranes. Movement can be manual or power operated. The stacker

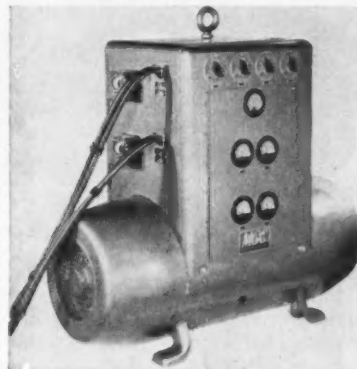
comes with attachments for lifting pallets, rolls, drums, or other loads. The device is highly maneuverable. It requires aisle width of the load length and 18 inches.

American MonoRail Co.

Circle 320 on Reader Service Card

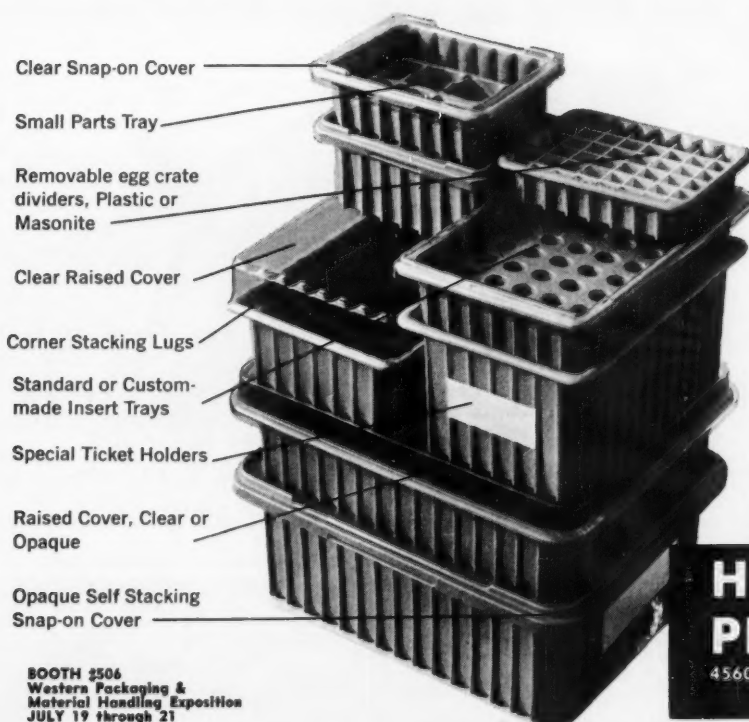
Automatic Charge

The Motor Generator Corp. monitor type charger was on view. These Hobart chargers are four-circuit automatic motor



generators for charging motorized hand truck batteries. The chargers are fully automatic as regards control, cut-off at full charge, shutdown at completion of charge, shutdown in case of power fail-

Standardize with MODUBOX SYSTEMS



Clear Snap-on Cover

Small Parts Tray

Removable egg crate dividers, Plastic or Masonite

Clear Raised Cover

Corner Stacking Lugs

Standard or Custom-made Insert Trays

Special Ticket Holders

Raised Cover, Clear or Opaque

Opaque Self Stacking Snap-on Cover

BOOTH 2506
Western Packaging &
Material Handling Exposition
JULY 19 through 21

The Most Versatile Material Handling Boxes on the Market. 28 sizes available. Standardize with Moduboxes throughout your plant. From machine shop (rough parts handling) to precision parts handling, white rooms, and dust free areas, Moduboxes will cut your reject rate. Manufactured from light weight, extremely durable Thermoplastic material—easy to clean—no maintenance.

Illustration shows 3 basic sizes of MODUBOXES in varying depths.

Style #1203—22 1/4 x 17 1/2, available depths 5", 6", 7" and 8", with or without stacking lugs.

Style #1201—16 1/8 x 11, available depths 2 1/2", 3 1/2", 5", 6", 7" and 8", with or without stacking lugs.

Style #1202—11 x 8 1/16, available depths 2 1/2", 3 1/2" and 5", with or without stacking lugs.

Other Basic Sizes Available.

HOLLYWOOD PLASTICS, INC.

4560 Worth St. • Los Angeles 63, Calif.

Phone: ANgelus 8-1181

WRITE: Dept. MHE-7

Circle 90 on Reader Service Card

Want to save on

marking?
dating?
coding?
your best choice is the



INDUSTRIAL WHIPPET MARKER®!

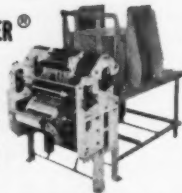
Industrial's WHIPPET Marker is the answer to fast, economical in-plant imprinting of bags, cartons, boxes, rolls, cans and the like. Friction motivated, it takes speed from and is controlled by your conveyor line operation. You mark containers as you use them, during production runs. Self inking, and using easily interchanged rubber type, the WHIPPET is solidly built to give years of trouble-free service. Easily installed out of the way on your present production line, it will quickly repay its original cost in extra savings and performance.

Write for complete details and new catalog today. Dept. MHE.

other INDUSTRIAL units include:

#7 AUTOPRINTER®

—for automatically imprinting cartons and multiwall bags at production speeds up to 3,000 per hour.



RAINBOW Trans-leaf Coder®

For flexible wraps,—cellophane, glassine, wax paper, poly-vinyl films, etc.

SPECIALS — Our Specialty. We make and supply all types of special marking equipment, custom designed and built for your individual needs.

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INDUSTRIAL MARKING EQUIPMENT
655 BERRIMAN ST. | company, inc.
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Circle 95 on Reader Service Card

SHOW REVIEW

continued

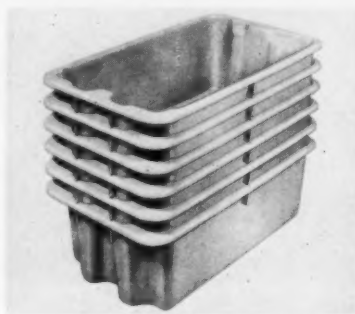
ure, and restart when power resumes. Each charger has four complete charging circuits in a dead-front control cabinet, housed atop the motor generator set to provide compact design.

Motor Generator Corp.

Circle 321 on Reader Service Card

Save On Indirect Labor

Your product needs the best handling care available; cost must be low. G. B. Lewis Co. showed the Stack-n-Nest molded Fiberglass containers.



Lightweight, sturdy design offers conservation of work space whether loaded

or stored. New in the line is a tote pan for the food industry made from PolyLewton, a high strength thermoplastic.

G. B. Lewis Co.

Circle 322 on Reader Service Card

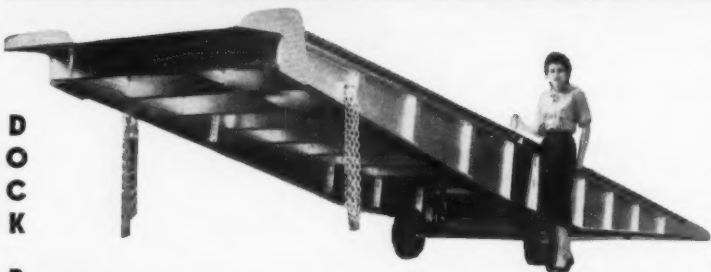
Fork Trucks For High Stack Jobs

The new Barrett-Cravens Company Model TTR Sit-Down Rider Fork Truck is available in capacities of 1,000, 1,500,



and 2,000 lb with various mast lift heights. Has automotive type steer, brake and accelerator for easy control. Mast

lite-line Mobile Yard Ramps



**The dock that goes to the job
will cut your loading costs**

A Lite-Line Yard Ramp moves easily into position, to load or unload truck or rail car.

SAFE • RUGGED • LIGHTWEIGHT

For complete information write to

lite-line
MAGNESIUM DOCK EQUIPMENT

LITE-LINE METAL INDUSTRIES
DIVISION OF
COPPERLOY CORP.
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MATERIAL HANDLING ENGINEERING

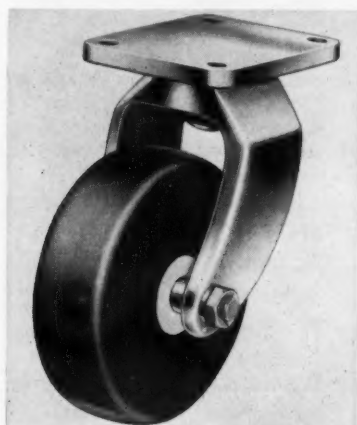
tilts 12 degrees back, 2 degrees forward. Company also featured its RST Rider Straddle Hi-Lift that has 1,000 to 4,000 lb capacities. It has left hand steering control.

Barrett-Cravens Co.

Circle 323 on Reader Service Card

Sanitary Caster

The Bassick Co.'s recently developed line of sanitary casters includes the "B-Line" of light duty aluminum casters.



These are designed for use in applications where corrosion is a problem. Series "BA" and "BB" are designed in compliance with the Sanitation Standards of the Baking Industry.

The Bassick Co.

Circle 324 on Reader Service Card

Power Sweepers For 24-Hour Work

Clarke Floor Machine Co. showed the new Model CHD-36 Rider Type Power Sweeper. It's rugged, and built to with-



stand long and hard usage. Frame and chassis are of welded unit construction. Has extra heavy 3/4" thick side panels of plate steel. A 3/16" thick channel encircles the complete machine for real protection.

Clarke Floor Machine Co.

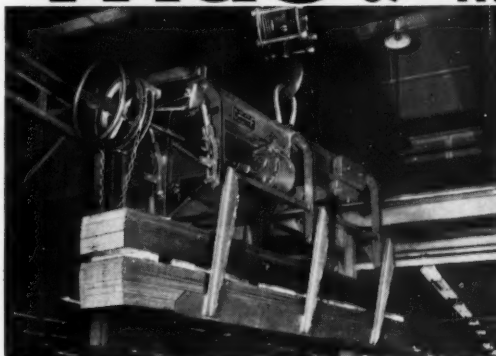
Circle 325 on Reader Service Card

Low Headroom

Mercury Mfg. Co. featured its new Low Silhouette fork truck, designed es-

Circle 47 on Reader Service Card

Wide or Narrow...



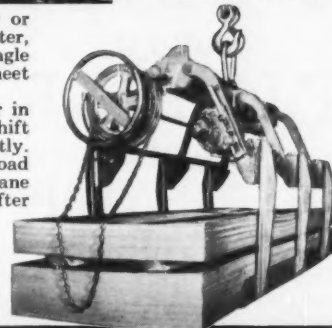
**1 C-F
LIFTER
HANDLES
THEM ALL**

Whether your production requires a few or many widths of sheet steel, 1 C-F Lifter, with its wide range of jaw and carrying angle adjustments will probably meet all your sheet handling requirements.

Adjustments are made by the operator in a few seconds, permitting the Lifter to shift from wide to narrow sizes almost instantly.

Because it can pick up, carry and unload more loads per hour, using less man and crane time than any other method, a C-F Lifter will soon pay for itself.

Bulletin SL-30 gives you the complete story of C-F Lifter advantages to you. Ask for it today. There's no obligation.



CULLEN-FRIESTEDT CO.

1320 South Kilbourn Avenue • Chicago 23, Illinois

DISTRIBUTORS A NEW TROUBLE-FREE CONVERSION UNIT
YOU CAN INSTALL AND FORGET!

McCLAIN LPG FUEL INJECTOR

The McClain system is the original pressure system of carburetion for LP-GAS. McClain is a competitive conversion unit backed by International advertising. This advertising helps presell your customer.

PRINCIPLE OF OPERATION

LP-Gas is metered into the throttle mixing chamber at approximately 2 lbs., assuring better gas-air mixing for highest efficiency.

FAST STARTING

Because the LP-Gas enters the throttle chamber under pressure you are assured fast starting . . . every time.

SIMPLE DESIGN. The vaporizer-regulator's simple design eliminates complicated and multiplicity of parts found in competitive equipment and assures long, care-free operation. This eliminates costly repeat calls of your service men.

FUEL ECONOMY

In test after test where McClain has replaced conventional conversion equipment, owners report fuel savings of from 22% to 44%.

MORE POWER

Owners report McClain gives power equal to gasoline with no engine changes, and far more power than other LPG equipment.

FOR INFORMATION ON PROTECTED TERRITORY, contact

**PEACOCK
CORPORATION**

P. O. Box 268 • Westfield, New Jersey

Circle 136 on Reader Service Card

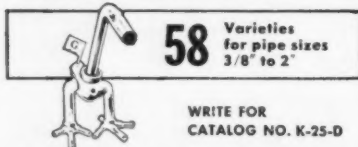


Build it FIRMER with "KEE KLAMP" SLIP-ON FITTINGS

This ceiling high storage rack, built with "KEE KLAMP" Slip-on Fittings and ordinary pipe... converts every inch of space into usable storage area... "KEE KLAMP" storage racks can be built easily to fit any space, strong enough to support any load.



Every fitting locks into rigid position with set screws, each capable of supporting a load of 4000 lbs. "KEE KLAMP" structures can be dismantled quickly for moving or modification. Fittings can be used over and over. We'll design "KEE KLAMP" structure to suit your needs without obligation.



58 Varieties
for pipe sizes
3/8" to 2"

WRITE FOR
CATALOG NO. K-25-D

KEE KLAMPS
NORTH AMERICA LIMITED
1073 WILLIAM ST.

Buffalo 6, New York

Several choice areas open to Representatives
with stocking facilities—Write for information

Circle 105 on Reader Service Card

SHOW REVIEW

continued

pecially for low headroom. Three models are rated at 2,000, 2,500, and 3,000 lb capacity at 24" load center. With a 68"



lowered mast height, the standard telescopic lift is 100". New features are the drive assembly, steering, lifting mast, tilt arrangement, ITA fork carriage, and frame design.

Mercury Mfg. Co.

Circle 326 on Reader Service Card

Reinforced Pallet

Signode Steel Strapping Co. demonstrated newly-developed strapping applications. The exhibit included a fully automatic power strapping machine, air



powered and electric powered strapping tools, power strap feeder, dispensers, cutters, and accessories. The Super Strip Pallet (photo) was featured. It's long lasting, includes two- and four-way entry, eliminates snagging, and is simply constructed. It's a wooden warehouse pallet reinforced with special 3/4" x .035" plastic coated steel strapping. The strapping is designed and treated to bend well and it can be nailed.

Signode Steel Strapping Co.

Circle 327 on Reader Service Card

Better Battery Operation

La Marche Recharger battery chargers are totally automatic, can often be mounted directly on the battery container. La Marche Mfg. Co. showed how you may eliminate the battery charging room

STOP



being confused

Our competition has some funny ideas about cable conveyors. Compare these true facts:

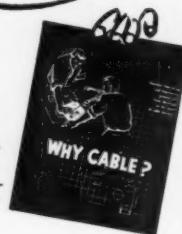
CHAIN	CABLE
SPEED	
Big problem	No problem
WEIGHT	
Whole problem	1/6 of this problem
LUBRICATION	
Big problem	No problem
WEAR	
Big problem	No problem
PAYLOAD	
Less per HP	More per HP

Now, let us prove it!

GO...



... For the multiple Cable-Link benefits detailed in this free brochure. See your nearest Cable-Link distributor, or write the factory.



Territories Available



**Dearborn
Cable-Link
Conveyor**

DEARBORN FABRICATING & ENGINEERING CO.
19440 GLENDALE • DETROIT 23, MICHIGAN

Circle 54 on Reader Service Card

MATERIAL HANDLING ENGINEERING



and get more efficiency from your battery equipment. They make more than 70 standard types of Rechargers that need no technically trained operators.

La Marche Mfg. Co.

Circle 328 on Reader Service Card

Magnetic Memory System At Work

Standard Conveyor Co. displayed typical package type conveyor system equipped with memory controls for automatic sorting and transfer of commodity

from one conveyor to any selected station. Demonstration featured quick acting, right angle push offs that enable fast



transfer to greatly increase the number of packages handled per unit of time. This system eliminates coding on packages and affords high multiple choice of stations. Station selector can be located at any convenient place.

Standard Conveyor Co.

Circle 329 on Reader Service Card

Structural Clamps

Merrill Brothers showed much of its line of clamps and material handling devices. Among the exhibits was this 2-ton structural clamp. It features a short leg which provides a secure bite even on small beams. The clamp, drop forged, is light weight compared with its capacity. Grip range is up to 1 inch. It has been 100 percent proof tested at 6



tons with a safety factor of 5:1. Merrill also presented a universal joint clamp, an automatic safety lock fork lift attachment, a drum lifter, hand clamp, and others.

Merrill Brothers

Circle 330 on Reader Service Card

Truck Makes Debut

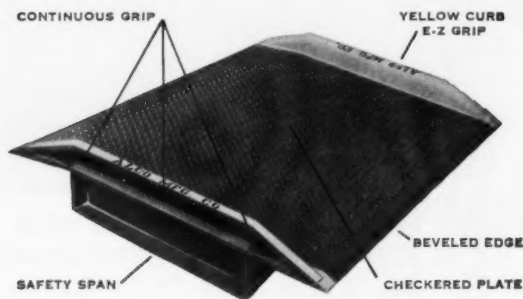
The Hyster Co. introduced the first pneumatic-tire lift trucks equipped with Monotrol control system. Monotrol combines forward-reverse selection and throttle in a single right-foot pedal. Operator has full-time use of his hands for steering.

The Hyster Co.

Circle 331 on Reader Service Card

magcoa

THE OLDEST NAME IN
LIGHTWEIGHT MAGNESIUM DOCKBOARDS



A Magcoa dockboard on your dock is a mark of quality. It is designed to fit your loading problems — not a standard that is almost right.

The new E-Z Grip continuous one-piece extruded Safety Curbs provide the strongest, safest guard rails you can have on your dockboards. Truck or rail — with Magcoa you have the best.

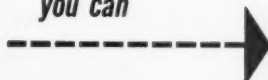
MAGNESIUM COMPANY OF AMERICA

Dept. 501, 155 S. E. 10th Avenue
Hialeah, Florida
TUXedo 7-8117

Circle 116 on Reader Service Card

FREE FOLDER

Case histories
tell how
you can



Exhaust fumes CAN kill

Unhealthful air reduces employee productivity; cuts profits. Learn how easily installed, economical Oxy-Catalyst Exhaust Purifiers convert gasoline, LP gas or diesel exhaust into a harmless vapor for safer indoor operation of lift trucks, sweepers, engine-generators, construction and mining equipment. Send today for free folder of case histories!

clean up
your
exhaust
fumes!

Exhaust fumes are a serious problem in many indoor operations. They are not only a health hazard but also a fire hazard. Oxy-Catalyst Exhaust Purifiers are the solution. They are easy to install and maintain. They convert exhaust fumes into a harmless vapor. They are the only exhaust purifiers that are guaranteed to work. They are the only exhaust purifiers that are backed by a 100% money-back guarantee. They are the only exhaust purifiers that are made in the U.S.A. They are the only exhaust purifiers that are available in 100 different sizes to fit your needs. They are the only exhaust purifiers that are available in 100 different colors to match your equipment. They are the only exhaust purifiers that are available in 100 different languages to help you understand them. They are the only exhaust purifiers that are available in 100 different currencies to help you pay for them. They are the only exhaust purifiers that are available in 100 different countries to help you get them. They are the only exhaust purifiers that are available in 100 different ways to help you use them. They are the only exhaust purifiers that are available in 100 different places to help you find them. They are the only exhaust purifiers that are available in 100 different times to help you get them. They are the only exhaust purifiers that are available in 100 different ways to help you use them. They are the only exhaust purifiers that are available in 100 different places to help you find them. They are the only exhaust purifiers that are available in 100 different times to help you get them.



OXY-CATALYST, INC. Devon 18, Pa.

Catalysts for cleaner, safer air

Please send free folder and information on exhaust purifiers for:

☐ LPG ☐ Unleaded gas ☐ Leaded gas ☐ 4-cycle diesel

Name _____ Title _____

Firm _____

Street _____

City _____ Zone _____ State _____

Circle 132 on Reader Service Card

Circle 125 on Reader Service Card

Compact Martin-Decker CRANE SCALES



CAN MATERIALLY INCREASE WAREHOUSE CAPACITY

- Require less Head Room than any comparable unit
- High Safety Factor (5 to 1)
- Low Cost ■ Light Weight
- Accurate ■ Easy to Read
- Easy to Handle

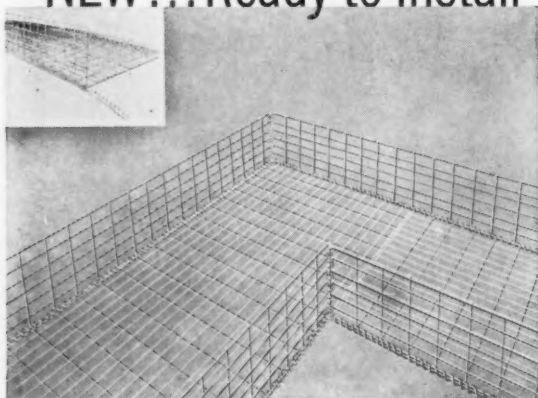
WRITE FOR DESCRIPTIVE BULLETIN N-33
Martin-Decker Corporation
3431 Cherry Ave., Long Beach 7, Calif.

**MARTIN
DECKER**



Precision Pressure Instruments—
Testing — Weighing —
Load and Force Measurement

NEW... Ready-to-Install



WIRE-SHIELD Conveyor Guards

Save costs with these easily installed WIRE-SHIELD Conveyor Guards. Fabricated 2 x 4 welded steel mesh in standard 8 ft. lengths with a wide choice of widths and side heights. Finished in aluminum. Provides protection for all conveyors . . . straight, inclined and with 90° turns. Shipped ready-to-install.

WRITE FOR INFORMATION

SPRINGPORT Steel Products Co.
SPRINGPORT, MICHIGAN



Circle 155 on Reader Service Card

SHOW REVIEW

continued

Long-Life Battery

Nine to 30 percent more electrical energy than automotive-type batteries is claimed for the 3-KCS-9 Exide shown by Exide Industrial Division. The new battery was developed particularly for light-duty industrial vehicles. It's an advanced miniature version of those that power mine locomotives. Minimum service-life is said to be 4 years.



Exide Industrial Div.,
Electric Storage Battery Co.

Circle 335 on Reader Service Card

Screw Stock Stored Easily

You handle and store screw machine stock neatly and easily with the new Bar-Stak system. The units are like magazines for cartridges. One man and a hoist can lift and place a ton of 12-foot lengths safely and flexibly according to Hartman Metal Fabricators. The system uses a grab, four

DOLIN MOBILE STORAGE SYSTEMS



CAN SOLVE YOUR SPACE AND STORAGE PROBLEMS

ABOVE—Mobile stock parts installation reclaimed app. 13,000 sq. ft. of valuable factory floor space for productive use.

LEFT—Aircraft stock parts were actually tripled within original supply area with this mobile system.

ONLY 1 AISLE FOR 6, 8 OR MORE ROWS! Aisle elimination is our proven method of "wall-stretching." Write for "IDEA KIT."

FREE LAYOUT SERVICE DEPT. MHE

DOLIN METAL PROD., INC. 315-21 LEXINGTON AVE.
BROOKLYN 16, N. Y.

Circle 61 on Reader Service Card

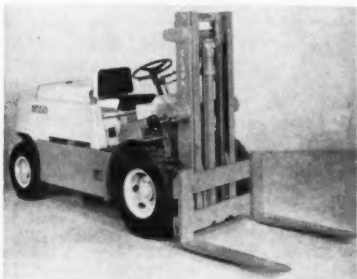
MATERIAL HANDLING ENGINEERING

cradles and a pair of end pieces per unit. They're all made of 1/4-inch steel plate. The firm also makes Flexirack, a completely adjustable storage shelf system, and Booster, a power drive for portable lift trucks.

Hartman Metal Fabricators, Inc.

Circle 336 on Reader Service Card

New Fork Line Offered



Clark Equipment Company has a new line of outdoor Clark-lift fork trucks. Capacities range from 2,000 through 8,000 lb. All have pneumatic tires and are gas-powered. They also have a new reach-type narrow aisle elec-

tric fork job only 38 inches wide with power brakes and power steering.

Clark Equipment Co.

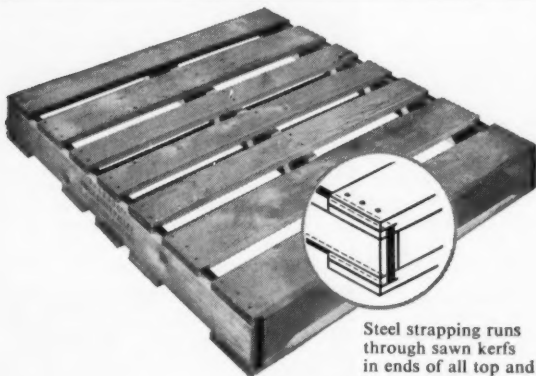
Circle 337 on Reader Service Card

Defeats Weather

An All Weather Custom Cab for towing tractors has a heavy steel roof and safety glass windshield with electric wiper. Durable canvas construction keeps out the elements. Clear vision is assured by unbreakable glass in the side and rear roll-up curtains. Two-way zippers assure rapid and easy entrance and exit for the tractor operator.

D. & M. Truck Top Co.

Circle 338 on Reader Service Card



Steel strapping runs through sawn kerfs in ends of all top and bottom boards.

New Super-Strip® Pallet Lasts More Than Twice as Long

- Reinforced with special steel strapping
- More than doubles pallet life
- Prevents racking—reduces automatic palletizing machine downtime
- Two or four-way entry

Use-tested. Strength proved in exhaustive tests. Write for additional information including name of licensed Super-Strip pallet manufacturer near you.



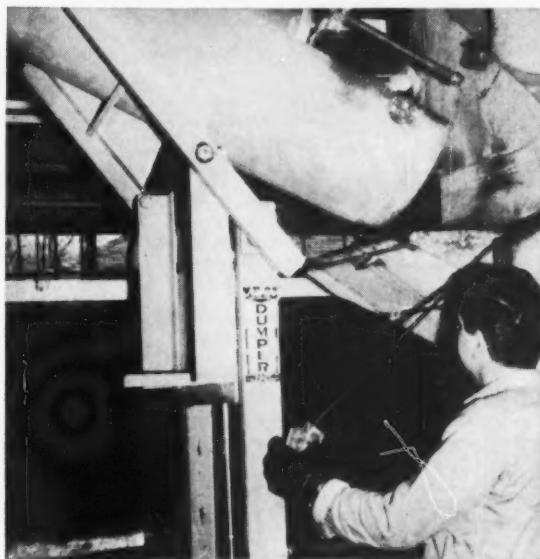
Sponsored for Wood Pallet Manufacturers by
SIGNODE STEEL STRAPPING CO.

Dept. SP, 2618 N. Western Avenue • Chicago 47, Illinois
Offices Coast to Coast

Foreign Subsidiaries and Distributors World-Wide
In Canada: Canadian Steel Strapping Co. Ltd., Montreal • Toronto

Circle 154 on Reader Service Card

LEADING TOOL & STAMPING COMPANY USES TUBAR DUMPERS FOR CONTROLLED FEEDING OF PARTS



Tubar Dumpers Solve Another Handling Problem...

Problem: Controlled feeding of small stampings into a parts cleaning machine from fibre drums. The rather frail fibre drums cannot withstand rough handling or abusive treatment.

Solution: A Tubar Dumper empties the drums at a controlled rate of speed. The operator can partially or completely empty the drum, as he so desires. The fibre drums are never damaged by the smooth, easy operation of the Tubar Dumper.

Use Tubar Dumpers to solve your handling problems... cut operating and labor costs... speed-up production. We custom-build Tubar Dumpers to fit your exact job needs. Our representatives are available to give you complete information. Write today!



Circle 167 on Reader Service Card

PLANNED maintenance pays off!



Less down-time
more **GO-TIME**
with

Hobbs INDUSTRIAL HOUR METERS

- Plan maintenance on operating hours — for superior performance and maximum utilization.
- Set up a factual basis for rental and leased equipment . . . for buying and selling.
- Time ALL your equipment: d-c hour meter for engine or battery-powered units . . . a-c hour meter for line-powered equipment.
- Be sure with a Hobbs true electric timing instrument — no revolution counter can do the job!

Distributors in Principal Cities

WRITE FOR CATALOG 600



John W. Hobbs Corporation
A DIVISION OF STEWART-WARNER CORPORATION
2061 YALE BLVD. SPRINGFIELD, ILLINOIS



NEW LANSING STAKE TRUCKS

Completely redesigned Stake Truck for warehouse and factory. Made in three sizes for loads to 2000 lbs. Features flush corner pockets, reinforced steel corners, reinforced hardwood deck, ball bearing casters and four removeable stakes.

PLATFORM TRUCKS

Wood or steel, smooth rolling for every need. Caster steer trucks in choice of models and sizes for loads to 6000 lbs.



HAND TRUCKS

Over 50 types for safe and easy one man handling of bags, barrels, cases or crates. Built for years of rugged service.

You'll find new operating economies with Lansing Trucks. Each is engineered for surplus strength and maximum maneuverability.

WRITE FOR LITERATURE AND SPECIFICATION DATA

02

Since 1881



BRANCHES
BOSTON
MINNEAPOLIS
PORTLAND

Circle 109 on Reader Service Card

CLASSIFIED ADVERTISING

Rates: Cost of all ads in this section is \$20 for the first inch and \$15 for each additional inch or fraction. Rates for display ads in this section will be sent on request. All classified advertising is payable in advance.

FOR SALE

Baker Traveloader. 6 ft. forks. Lift height 12 ft. 10,000 lb. capacity. Torque converter drive; power steering, power brakes. Can be licensed in any state for highway travel with full load. Actual time, 1,460 hours. Excellent condition. For sale—cash or lease purchase. Nosco Plastics, Inc., P. O. Box 269, Erie, Pa.

MANUFACTURERS REPRESENTATIVE

Manufacturer of quality line tubular steel stacking racks has a few exclusive territories open for reliable and experienced manufacturers representatives. Write C. E. ROBINSON COMPANY, 222 Colburn Avenue, Joliet, Ill.

IDEAS . . . from STORAGE RACK HEADQUARTERS

. . . new manual showing how prefabricated, fully adjustable SPEEDRACK stores more of nearly everything in the same space . . . at less cost! Request your copy, today!



Write to
**STORAGE
PRODUCTS
CORPORATION**
4410 Oakton St., Skokie, Ill.

speedrack®

Circle 156 on Reader Service Card
MATERIAL HANDLING ENGINEERING

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*For additional data, see the 1960/61 MHE Directory

ALBUQUERQUE DIVISION
— ACF INDUSTRIES

MATERIALS HANDLING ENGINEER

Minimum 5 years' experience in heavy manufacturing. Degree preferred, but not essential. Able to analyze needs, plan and direct the design and procurement of equipment as related to the manufacture of large fabricated parts. Must be a self-starter, with initiative and ability to get things done.

ACF Industries, Incorporated, Albuquerque Division, is a prime contractor for the Atomic Energy Commission. Citizenship required and all applicants must pass security examination.

Enjoy living in a high, dry mountainous climate. Area recommended for arthritis, asthma and respiratory conditions. Housing plentiful and moderately priced.

Liberal Travel and Moving Allowances.

Send resume and salary requirements to R. L. Hansen, Supervisor of Employment, ACF Industries, Incorporated, P. O. Box 1666, Albuquerque, New Mexico.

USE THIS CARD

For more information on advertisements, new products, useful literature, or services advertised just circle the reader service number.

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TITLE _____

COMPANY _____

KIND OF BUSINESS _____

ADDRESS _____

CITY _____ ZONE _____

STATE _____

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COST CUTTING IDEAS

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MATERIAL HANDLING ENGINEERING

JULY 1960

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Card Invalid Without Company Name - Type or Print

NAME _____

TITLE _____

COMPANY _____

KIND OF BUSINESS _____

ADDRESS _____

CITY _____ ZONE _____

STATE _____

DO NOT USE THIS CARD AFTER OCT. 15, 1960

COST CUTTING IDEAS

250	257	264
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NEW EQUIPMENT

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301	310	319	328	337	346	355	364	373
302	311	320	329	338	347	356	365	374
303	312	321	330	339	348	357	366	375
304	313	322	331	340	349	358	367	376
305	314	323	332	341	350	359	368	377
306	315	324	333	342	351	360	369	378
307	316	325	334	343	352	361	370	379
308	317	326	335	344	353	362	371	380

USEFUL LITERATURE

400	409	418	427	436	445	454	463	472	481	490
401	410	419	428	437	446	455	464	473	482	491
402	411	420	429	438	447	456	465	474	483	492
403	412	421	430	439	448	457	466	475	484	493
404	413	422	431	440	449	458	467	476	485	494
405	414	423	432	441	450	459	468	477	486	495
406	415	424	433	442	451	460	469	478	487	496
407	416	425	434	443	452	461	470	479	488	497
408	417	426	435	444	453	462	471	480	489	498

MATERIAL HANDLING ENGINEERING

JULY 1960

Circle item numbers for additional information about products described and advertised in this issue.

ADVERTISERS

1	13	25	37	49	61	73	85	97	109	121	133	145	157	169	181	193	205	217	229
2	14	26	38	50	62	74	86	98	110	122	134	146	158	170	182	194	206	218	230
3	15	27	39	51	63	75	87	99	111	123	135	147	159	171	183	195	207	219	231
4	16	28	40	52	64	76	88	100	112	124	136	148	160	172	184	196	208	220	232
5	17	29	41	53	65	77	89	101	113	125	137	149	161	173	185	197	209	221	233
6	18	30	42	54	66	78	90	102	114	126	138	150	162	174	186	198	210	222	234
7	19	31	43	55	67	79	91	103	115	127	139	151	163	175	187	199	211	223	235
8	20	32	44	56	68	80	92	104	116	128	140	152	164	176	188	200	212	224	236
9	21	33	45	57	69	81	93	105	117	129	141	153	165	177	189	201	213	225	237
10	22	34	46	58	70	82	94	106	118	130	142	154	166	178	190	202	214	226	238
11	23	35	47	59	71	83	95	107	119	131	143	155	167	179	191	203	215	227	239
12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240

Card Invalid Without Company Name - Type or Print

NAME _____

TITLE _____

COMPANY _____

KIND OF BUSINESS _____

ADDRESS _____

CITY _____ ZONE _____

STATE _____

DO NOT USE THIS CARD AFTER OCT. 15, 1960

COST CUTTING IDEAS

250	257	264
251	258	265
252	259	266
253	260	267
254	261	268
255	262	269
256	263	270

NEW EQUIPMENT

300	309	318	327	336	345	354	363	372
301	310	319	328	337	346	355	364	373
302	311	320	329	338	347	356	365	374
303	312	321	330	339	348	357	366	375
304	313	322	331	340	349	358	367	376
305	314	323	332	341	350	359	368	377
306	315	324	333	342	351	360	369	378
307	316	325	334	343	352	361	370	379
308	317	326	335	344	353	362	371	380

READER SERVICE CARD - MATERIAL HANDLING ENGINEERING

FIRST CLASS
PERMIT No. 8066
CLEVELAND, OHIO

BUSINESS REPLY MAIL

NO POSTAGE STAMP NECESSARY IF MAILED IN UNITED STATES

POSTAGE WILL BE PAID BY:

MATERIAL HANDLING ENGINEERING

812 Huron Road
Cleveland 15, Ohio

FIRST CLASS
PERMIT No. 8066
CLEVELAND, OHIO

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CLEVELAND, OHIO

BUSINESS REPLY MAIL

NO POSTAGE STAMP NECESSARY IF MAILED IN UNITED STATES

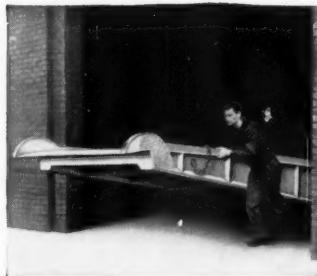
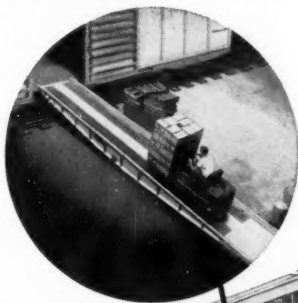
POSTAGE WILL BE PAID BY:

MATERIAL HANDLING ENGINEERING

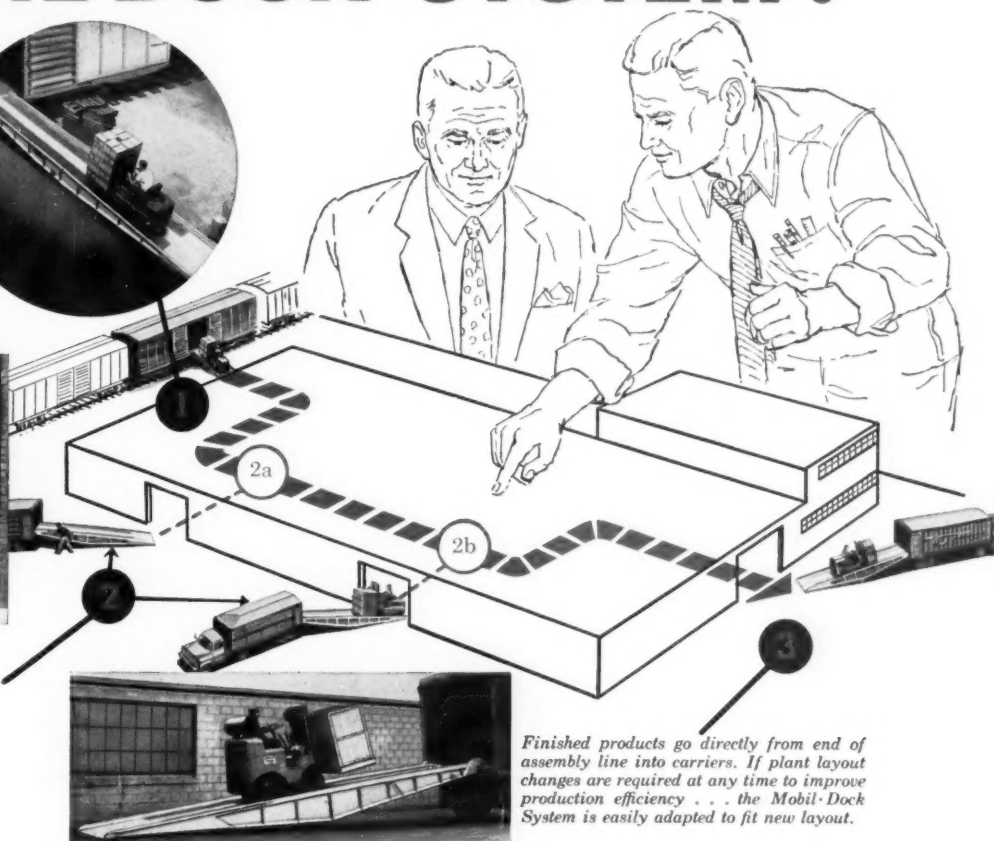
812 Huron Road
Cleveland 15, Ohio

MOBIL-DOCK SYSTEM!

Mobil-Dock is used to unload materials from railcars near start of assembly operations.



Here, additional in-process parts are unloaded from trucks right where they're needed in the assembly operation (2a and 2b). There's no need to shuttle loads from receiving dock to assembly points.



Finished products go directly from end of assembly line into carriers. If plant layout changes are required at any time to improve production efficiency . . . the Mobil-Dock System is easily adapted to fit new layout.

NEW GROUND-LEVEL LOADING SYSTEM CUTS HIGH COST OF FIXED-POINT SHIPPING AND RECEIVING . . . ELIMINATES DOUBLE LOAD HANDLING!

Now you can layout, modernize or expand facilities to meet your changing production needs . . . quickly set up receiving and shipping points exactly where they're needed for fast, efficient low-cost handling! A Magliner Mobil-Dock System eliminates multiple-handling problems, cuts the high cost of

fixed-point shipping and receiving! You load and unload where you want to . . . change plant layout when you want to . . . keep materials flowing on a shortest-distance basis. A flexible, economical ground-level loading system that fits an infinite variety of plant and warehouse layouts—brings big, important cost-savings wherever it's used! The application shown above is typical of how Mobil-Dock is saving thousands of dollars for large and small companies alike.



MAGLINER MAGNESIUM MOBILE LOADING RAMP: BASIS OF THE MOBIL-DOCK SYSTEM. A loading dock on wheels, the Magliner Mobile Loading Ramp is lightweight for easy one-man handling . . . ruggedly constructed to handle loads up to 16,000 lbs., more if you need it. Hydraulic lifting unit provides fast, simple height adjustment to truck or railcar floor. Heavy-duty non-slip grating tracks provide safe, sure all-weather power truck traction.

Send today for Engineering Bulletin MD-212

See how other companies engaged in manufacturing, processing, warehousing, etc., are solving high-cost materials handling problems with the Mobil-Dock System. **MAGLINE INC., P.O. BOX 17, PINCONNING, MICHIGAN**



MOBIL-DOCK

SYSTEM OF GROUND-LEVEL LOADING

What is this writer trying to say?

"In instances of mobile applications where fluid temperature due to intermittent operation and continued exposure remains low, a high-viscosity-index, low-pour-point fluid would be mandatory for reliable operation."

What he wants you to know is this:

"Machines used outdoors in winter need oil that isn't affected by the cold."

Well if that's what he meant, why didn't he say so? Good question. The reason you have to hack your way through doubletalk in some technical and business magazines is that writing things clearly and simply is hard work—a lot harder and much more expensive than putting them down in technicalese (the special language of engineers and longhairs.) The odd part of this problem is that even the longhairs who *write* technicalese don't like to *read* it. That is why the articles in this magazine have been distilled.

Distilled Writing gives you facts without fluff

Our research department told us that we—like other publishers—were taking too much of our space and your time to get the facts across. That's where Distilled Writing comes in.

● **WHAT'S DISTILLED WRITING?** It's copy with the extra words squeezed out. It gives each article exactly as much space as it really needs . . . not one line more! This isn't a digesting process: all the facts are still there, but the verbiage is gone. For example, we take this kind of writing . . . and distill it to this:

eliminate unwanted vegetation kill weeds

It is used to rupture missile
frames in flight to initiate It makes missile frames
aerodynamic disintegration. explode in flight.

formation of iron oxide binding
the two surfaces rusted together

● **HOW WE DEVELOPED DISTILLED WRITING.** First we hired Dr. David Kinsler to head up our distilling on a fulltime basis. He works with all our editorial staffs, teaching sharp, concise writing. Second, we retained Rubert Gunning, the top authority on readable writing, as our consultant. Third, we put every line of copy—whether staff-written or by an expert in the field—through the distilling process before it goes to the printer. Our whole editorial effort is aimed at telling the story brightly, clearly, briefly.

● **WHAT DOES THIS MEAN TO YOU?** The story that used to take four pages is now told in two or three. Shorter articles mean more of them in each issue. You get more information for your reading time and you don't have to dig it out. It takes more work for us to do it, but Distilled Writing pays off in the time it saves for our busy readers.



Distilled Writing is
the registered service
mark of The Industrial
Publishing Corporation

